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COMPUTERWORLD

INSIDE

In Depth — Is the laptop computer this generation's calculator? **Page 61**

Section Feature — Do small and mid-size systems really save money? Three professionals discuss pros and cons of downsizing. **Page 47**

Compatibility with MS-DOS and Unix is top issue amid flurry of Macintosh announcements expected next week. Page 2

AT&T is hard at work developing the capability to allow customers dynamic reallocation of network service bandwidth. Page 10.

Microsoft gets the nod to develop unified Unix for 80386-based micros. Page 114.

Former McCormack & Dodge whiz Landry sells expert systems firm to Cullinet. Page 12.

Third-party vendors rush to sign on with Vaxstation 2000. Page 19.

IRS tries to extend capacity life of overloaded mainframes. Page 47.

American Standard's vice-president of MIS, Gary Biddle, explains how to build a worldwide MIS organization. Page 77.

IBM charts dual mid-range course

Unveils Solutionpacs for System/36, VM-based machines

BY STANLEY GIBSON
CW STAFF

NEW YORK — IBM last week reaffirmed its intention to maintain two diverse architectures for general-purpose mid-range systems and said it will offer similar software packages for both hardware families.

In a move to establish its mid-range around both the System/36 and 9370 departmental systems, IBM rolled out packages of office software, called the IBM Solutionpac Office Series, for both machines.

Last week's wide-ranging announcement also included enhanced versions of the RT Personal Computer (see story page 4) and recovery features for CICS on MVS/XA systems (see story page 112). IBM also revealed that it will not offer its 4361 model after May 29 and will not offer upgrades to the 4361 for users of 4321 and 4331 machines after that date.

IBM Vice-President Larry Ford said the company will ship the 9370 ahead of schedule, moving up deliveries that were slated for the third quarter to the second. Ford said some 100 9370s are now installed and that at least another 100 will be installed by the second quarter.

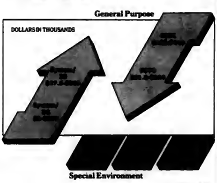
In an apparent reference to mid-range rival Digital Equipment Corp., which pitches a single architecture with its VAX line, Ford said, "We are convinced that one architecture is not the answer. Customers want a choice and solutions tailored to their needs."

Anthony C. Mondello, IBM vice-president of office systems, asserted, "The user wants a common application on all systems. . . . Users want MVS, VM and System/36 and System/38 to look the same." But he added, "We have a ways to go before we

Continued on page 6

Converging lines

IBM says dual architectures can coexist in same performance range



CW CHART MITCHELL J HAYES

DDM holds distributed DBMS key

BY ELISABETH HORWITT
CW STAFF

RYE BROOK, N.Y. — The Distributed Data Management system, which IBM has been introducing piece by piece since June, will be the basis for a future distributed relational data base management system, IBM disclosed to *Computerworld* last week. IBM also unveiled the Personal Computer component of DDM.

Before IBM's distributed DBMS becomes a reality, though, DDM will need significant additions, such as a global data dictionary and applications software support — particularly on the PC side, analysts pointed out. Currently, programmers need to write an unspecified amount of code before IBM PC users can access files across multiple hosts, according to IBM spokesmen.

The company is currently working on enhancements that will make DDM a truly transparent distributed DBMS, according to Jan Fisher, senior architecture planner of IBM's Systems Products Division.

"DDM's architecture defines a distributed data set of record-oriented files across different systems and will be the basis for our distributed data base system," he claimed.

Lively speculation

One key area to be addressed by the vendor is migration of DDM from the current VSAM-based file system to a true relational DBMS. A subject of lively industry speculation is whether IBM will use its existing relational DBMS product, DB2, or a new system.

Frank Dzubeck, president of Communications Network Architects, Inc., asserted that DB2 will form the basis for the distributed system. However, an IBM spokeswoman said that IBM is "moving toward a DDM version of a relational DBMS, but not necessarily of DB2." She added that customers should not expect IBM to introduce any kind of DDM-based relational DBMS product in the immediate future.

Another important compo-

Continued on page 112

286 DOS in doubt for '87

Microsoft cites problems of 'brain-damaged' chip

BY DOUGLAS BARNEY
CW STAFF

REDMOND, Wash. — Microsoft Corp. refused last week to commit to delivering a version of MS-DOS for the Intel Corp. 80286 processor this year, raising the possibility that major applications for the advanced operating system will not be available until mid-1988, or some six to nine months after the system is released.

"We are not going to make any commitment to this calendar year," said Microsoft Chairman Bill Gates, referring to the 80286 operating system in an interview last week. Gates did commit to delivering the system, now referred to as 286 DOS, within 12 months.

The sheer length of time it has taken to develop and test 286 DOS has prompted a rash of speculation about the operating system and related products that still have not been formally announced. The misconceptions surrounding Microsoft's plan prompted the firm to hold an educational seminar for the press and industry analysts last Friday.

Despite the continuing speculation, Microsoft is still unwilling or unable to fully disclose its

Continued on page 114

Trim Compaq targets laptop, desktop users

BY DOUGLAS BARNEY
CW STAFF

NEW YORK — A new breed of portable personal computer, designed for both the desktop and laptop markets, was announced last week by Compaq Computer Corp. The machine is lighter, smaller and faster than any of Compaq's existing portable computers.

The 12-MHz Portable III weighs 18 lbs in a standard configuration and uses a gas plasma display and a full-size 84-key keyboard. The machine comes with 640K bytes of random-access memory, expandable to 6.6M bytes, and uses the standard 5¼-in. floppy disk drive.

Continued on page 8

NEWSPAPER

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IN THIS ISSUE

Downsizing debate. What type of relationship is the industry entering as it flirts with the small portable? Large firms and individuals approve of dual-purpose laptop/desktop units for decentralization and price/performance, but security, cost and practicality questions make some users hesitant to pursue the technology.
Pages 8, 47, 66

Customer service In an attempt to divert telecommunications users away from private T1 equipment vendors, AT&T is speeding up its Customer Controlled Reconfiguration to provide a near-real-time dynamic bandwidth configuration. **Page 10**

NEWS

4 IBM's RT enhancements move PC up to snuff.

4 Price increases affect IBM equipment rental rates, Information Network service, software and magnetic tape purchases.

6 IBM releases details on fault-tolerant System/88 and additional models in System/36 and Series/1 lines.

7 Users back IBM's midrange strategy.

8 HP reports weak U.S. sales market, but growth in Europe leads to revenue increase in first quarter.

12 Cullinet ups expert systems capabilities with acquisition of Distribution Management Systems.

12 Near-five million dollar loss reported in third quarter by Cullinet.

13 ADR plans to derive an SQL language for use with its mainframe DBMS.

13 AT&T rolls out PC AT clone to be manufactured by Olivetti.

14 Digital Research's UK-developed operating system bucks to become personal computer standard.

15 Phoenix Technologies launches assault on piracy in U.S. and Canada.

112 Novell announces developer's kit, low-cost Ethernet adapter card, acquisition of Softcraft, Inc.

112 Version 2.1 of IBM's CICS adds new flavor to previous releases.

114 AT&T, Microsoft join forces to create Unix standard for 80386-based micros.

Not for loners only: *Laptop computers are settling into major corporations and may become this generation's calculator. By Ashley Grayson. Page 61.*

SOFTWARE & SERVICES

19 Software vendors quick to respond to DEC 2000 announcements.

19 ADR redesigns Librarian for ISPF on-line environment.

MICROCOMPUTING

29 Computerland supplies franchises with publishers program demos.

29 Macropac's 101 Macros simplifies and expands Excel.

NETWORKING

41 Network firms mesh marketing, product development.

41 AT&T debuts primary rate for System 85.

41 System enables communication between incompatible products.

SYSTEMS & PERIPHERALS

47 High-speed VMEbus adapter for Butterfly processor out.

47 System Industries answers DEC with 4G-byte storage array.

47 IRS taxes mainframes, says replacements are years away.

MANAGEMENT

77 Gary Biddle: American Standards' MIS manager and catalyst.

77 Mergers, retirement lead execs into independent consulting.

77 Midwest bank expands remote data processing operations.

COMPUTER INDUSTRY

83 Uccel, VM and Sterling report strong year-end profits.

83 Japan ignores U.S. chip trade accord.

83 Memorex begins new life as a distributor.

IN DEPTH

75 Barred from the boardroom: Why is MIS always the last to be involved in executive decision making? By Bob Hilton.

OPINION & ANALYSIS

17 Newquist waits for a Japanese original.

31 Zachmann plays football on his PC.

43 Ulrich urges exercising opinions on unleashing Baby Bells.

49 Connolly says Amdahl has learned its lessons.

69 Eliot delineates strategic uses of expert systems.

81 Mallach discards fad as fiction.

DEPARTMENTS

16 Editorial

82 Calendar

DOS and Unix to join up with Macintosh

BY PATRICIA KEEFE
and PEGGY WATT
CW STAFF

Apple Computer, Inc. is slated on March 2 to announce versions of the Macintosh that will run the Unix and Microsoft Corp. MS-DOS operating systems with add-on boards developed by several vendors.

The two models of the Macintosh are the Macintosh SE, which is one level beyond the current high-end Macintosh Plus and uses the same Motorola, Inc. 68000 processor, and the Motorola 68020-based Macintosh II, which shares the boxy chassis and expandability of the Apple II line. Both systems include cooling fans, a new feature for the Macintosh.

Apple also plans to unveil updated Macintosh applications that take advantage of the color capabilities of the new Macintosh II and add-on boards that take advantage of the new Macintosh's expansion slots.

Apple and Unisoft Systems Corp. will jointly announce a Unix port for the Macintosh, sources said. "Unix will run in the Mac, totally transparent to the user," one source said of the system, which will reportedly be priced at about $5,000.

Unisoft was chosen over several competitors because it was the only Unix developer that could provide Apple with a full AT&T Unix System V implementation, including the University of California at Berkeley's Unix 4.2 enhancements, sources said. Unisoft President Robert Ackerman declined to confirm or deny the report.

Multiple MS-DOS boards

At least three vendors will announce MS-DOS boards, sources said. Phoenix Technologies, Inc., AST Research, Inc. and Radius, Inc. have all developed boards to run MS-DOS applications under Intel Corp. 8086 or 80286 coprocessors on the new machines.

The Macintosh SE resembles the Macintosh Plus chassis, has a single expansion slot and will be available with an optional 40M-byte, small computer systems interface-based internal hard disk drive. The slot on the SE can be used for a 68020 or 68881 processor or an Ethernet network controller, a beta-test user said. The SE's motherboard can provide 1M to 4M bytes of random-access memory. The SE is expected to ship shortly after introduction.

The Macintosh II is two to four times faster than a Macintosh Plus, according to a beta-test user, has six expansion slots and can run several operating systems, including the Apple DOS used by the Apple II family. A video card takes up one slot. The system can provide two floppy disk drives and a hard disk drive.

The Macintosh II is not expected to be available for several month after introduction.

Because the computer has three hardware components, the user has the option of several monitors, including color, and an Apple keyboard or one similiar to that of the IBM Personal Computer.

Apple is also scheduled to announce a line of hard disk drives and tape backup systems ranging from 20M to 160M bytes in capacity.

Supermac Technology plans to introduce a high-resolution color video card for the Macintosh II, which is comparable to IBM's PGA standard, according to sources who have seen the product. Also designed for the Macintosh II is a new presentation graphics package from Forethought, Inc. The graphics program can produce slides and overhead transparencies with output to Adobe Systems, Inc. Postscript-compatible printers and plotters.

Joint introduction

Also scheduled for introduction is Desktop Express, a jointly developed product from Dow Jones & Co., MCI Communications Corp., Solutions, Inc. and Apple. Desktop Express combines the features of Straight Talk, a Dow Jones retrieval package, and Glue, a package from Solutions that allows file sharing among dissimilar applications, sources said.

Other vendors scheduled to announce new products at Apple World include Kurta Corp., with a Macintosh version of its input tablet and templates; General Computer Co., with a tape backup for its Hyper Drive hard-disk systems; Microsoft, with a color version of the spreadsheet Excel; and Living Videotext, with a color version of More, the company's outline processor.

A number of other vendors will show previously announced products, some with enhancements to run on the Macintsoh II, according to sources close to Apple and Apple World.

Many observers reported that they were optimistic about the advances in Macintosh technology, which give the system some of the capabilities that prospective corporate users have requested.

Senior Editor Douglas Barney contributed to this report.

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Performance boosts blunt RT PC barbs

BY NINAMARY
BUBA MAGINNIS
CW STAFF

NEW YORK — One year after it was unveiled to generally poor reviews, the IBM RT Personal Computer was enhanced last week with the announcement of three models that observers say move the workstation to a competitive level with other vendors.

The latest versions greatly improve on the RT's weakness in price/performance, communications, floating-point performance, memory and graphics capability.

The RT PC Models 115, 125 and B25 include a 20-MHz floating-point processor, 16M bytes of maximum memory and 5,810M bytes of maximum disk storage. The 19-in. color graphics display terminal offers a resolution of one million pixels.

X-Windows support

The RT PCs run the AIX operating system, an IBM-modified version of AT&T's Unix System V, and support X-Windows, an industry-standard multiwindowing capability.

The RT series machines can support up to 16 users but should be configured as single-user systems for demanding engineering applications, according to industry analysts.

The RT PC enhancements will spur users to re-evaluate the machine as a general-purpose Unix engine, said Frank Gens, an analyst with Framingham, Mass.-based International Data Corp. (IDC). "The irony here is that IBM is trying to position the RT as a single-user system, and our IDC survey shows that about 80% of all installed RTs are being used as multiuser systems," Gens observed.

RT developers from IBM's Austin, Texas, facility reportedly told consultants that the RT is really a Unix mini capable of running System V software — with a few modifications made for memory management and networking. The RT's AIX operating system comes close enough to standard Unix that users can consider running existing Unix applications on it.

IBM was unsuccessful with its workstation debut last year, with about 8,000 RT systems installed to date, reported Dale Kutnick, executive vice-president of research at the Stamford, Conn.-based Gartner Group, Inc. Mountain View, Calif.-based Sun Microsystems, Inc., Apollo Computer, Inc., based in Chelmsford, Mass., and Digital Equipment Corp., based in Maynard, Mass., won larger market shares than Big Blue, according to Robert Herwick, a senior analyst at Hambrecht & Quist, Inc.'s New York office.

Although IBM claimed a single architecture such as DEC's VAX/VMS environment is not the way to go (see story page 1), Herwick said users are demanding connectivity and compatibility. "That's why DEC is eating IBM's lunch — and dinner too," Herwick observed. "DEC is right, and IBM is wrong. That's why Apollo and Sun are killing themselves to enhance connectivity to the installed DEC and IBM base.

"This is IBM's second attempt to fix those [workstation] problems, and price/performance is still a problem," Herwick continued. "Some enhancements have attempted to increase networking capabilities of the workstation, but they are inadequate to anything you can get from Apollo, Sun or DEC. IBM has the ability to access files on other systems, but it's not as transparent and not as easy as with the other systems," Herwick explained.

The firm's workstations are also weak in application software offerings. "Software sells systems. IBM has only 200 packages, by their own admittance," said John McCarthy, research manager at Cambridge, Mass.-based Forrester Research, Inc.

Yet many of those applications are general-purpose ones, noted Omri Serlin, of Itom International, a Los Altos, Calif.-based consulting firm. "They probably concluded that the basic design is not improvable enough to pose a serious threat to Sun and DEC," Serlin said.

The RT PC announcement puts IBM on an even keel with DEC, according to the Gartner Group's Kutnick. "If you do a side-by-side comparison of the RT and Vaxstation II, you will find them very comparable," Kutnick claimed.

The new RT workstation has some industry watchers convinced of its strength. "I'm on record as putting down the first RT, but I'm a convert now," said Charles Foundyller, president of Daratech, Inc. in Cambridge, Mass. Future RT models will prod OEMs to switch to the RT, he added.

While IBM is pricing the RT as a $10,000 to $18,000 machine, the actual price for a useful Model 115 system is $30,000, reported Richard Shaffer, a principal with Technologic Partners, a New York-based financial consulting firm.

"IBM has low-balled a la carte pricing, and for $10,000 you don't get a useful machine," Shaffer said, adding that a useful RT Model 125 costs about twice the base price.

"As usual, IBM doesn't include in the press release that things like the operating system are separate," Shaffer onted. For example, the monitor costs an extra $2,300 and is inoperable without the accompanying $4,500 adapter card, he said.

"DEC has a similar problem. The Microvax 2000 is much less expensive than the RT but also only offers half the performance," Shaffer said.

Noted Hambrecht & Quist's Herwick, "The original RT was terrible. IBM's first attempt to fix some errors raised it to mediocrity. The last announcement raised it to a level of adequacy, but there is no performance-related area where this system is superior to the three other competitors."

CW staff writers James Connolly and Jean S. Bozman contributed to this report.

RT PC: Then and now

IBM's engineering system when introduced and with latest enhancements

RT PC Capability	*January 1986*	*February 1987*
Performance Dhrystones	1,780	6,900
Floating-point performance Whetstones (single-precision)		
Standard	20K	810K
Optional	200K	1,600K
Linpack KFLOPS (double-precision)		
Standard	--	80
Optional	37	300
Direct-Access Storage Device		
Maximum capacity	210M bytes	5810M bytes
Data rate	0.260M byte/sec.	1.08M byte/sec.
Random-access memory (maximum)	4M bytes	16M bytes
Number of users (maximum)	8	16
Display size/Pixels (maximum)	15 in./75M	19 in./1M

INFORMATION PROVIDED BY IBM
CW CHART

IBM hikes rental, maintenance fees

BY CHARLES BABCOCK
CW STAFF

RYE BROOK, N.Y. — IBM announced a round of price increases Friday for most of its equipment rental rates, selected software products and Information Network service as well as purchase-price increases for selected magnetic-tape products.

The equipment rental rates and selected purchase prices will be increased by about 10%, effective immediately. Selected software prices will also be increased by 10%, effective immediately; Information Network products will be increased by about 6%, effective April 1. Per-call maintenance rates are being increased by 15% immediately.

"It appears that IBM is raising prices on its most labor-intensive products; maintenance is very expensive to provide, and software is very expensive to provide. It looks like a standard business review of pricing structure," said Tom Henkel, an analyst with The Yankee Group in Boston.

A typical product that could be affected is an older product line such as the IBM 3420 Models 6 and 8 tape drives.

There were on contract maintenance increases on the IBM 3090, 3080, 4300 or 9370 mainframe lines, company spokesmen said.

A week ago IBM announced contract maintenance decreases for selected models of the System/34, 36 and 38.

IBM made a similar announcement almost a year ago to the day when it notified customers on Feb. 21 of price increases in rental and maintenance agreements ranging from 8% to 15%.

That set of price increases concentrated on older, peripheral products, such as the Displaywriter Model B10. The monthly rental fee increased 8% from $510 to $550.

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415/424-8844
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Midwest
312/827-4433
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CW Communications International News Service
Susan Blakeney, Director

Main Editorial Office
Box 9171, 375 Cochituate Road
Framingham, MA 01701-9171
617/879-0700

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IBM charts

CONTINUED FROM PAGE 1

do that."

Explained Ford, "We don't think it's inconsistent to have different architectures with the same application interface."

Meanwhile, Ford said IBM will keep three specialized mid-range processors — the System/88 fault-tolerant system, the Series/1 and the RT Personal Computer engineering workstation.

The Solutionpac Office Series was announced in two editions, one for the System/36 and another for VM machines. Both are collections of existing office software including word processing, electronic mail and calendar and optional features such as decision support and data base query. Optional services include user customization and education. By dialing an 800 number, users of both versions are offered assistance 24 hours a day, seven days a week.

The packages are similar in concept to DEC's All-In-1, Wang Laboratories, Inc.'s Wang Office and Data General Corp.'s CEO packages.

IBM said the System/36 Solutionpac will be available in April, and the VM Solutionpac is scheduled to be available in August. The pair of software groupings were just two of some 50 new products announced by Big Blue last week.

More System/36 storage on top

Other offerings include more direct-access storage for the System/36, a more powerful entry-level System/36 D model, an enhanced Series/1 machine, additional communications servers and terminals and new System/88 processors.

The System/36 Solutionpac runs on the System/36 Models 5360 and 5362 with a minimum of 1M byte of memory and 260M bytes of direct-access storage. Solutionpac software that connects micros to the System/36 host requires an IBM Personal Computer XT or PC AT.

The text software is IBM Displaywrite/36 and IBM Language Dictionary. Communications and administrative support is provided by Personal Services/36. PC support is provided by IBM PC Support/36. PCS/36 Organizer provides a common menu for the end user to select functions that reside either on the PC or on the System/36.

The PC application for the System/36 Solutionpac is IBM Displaywrite 4. PC-to-host communications are provided by IBM Enhanced 5250 Emulation. Charges range from $35,000 to $66,000, depending on the options selected.

The VM Solutionpac runs on the IBM 4300-, 9370- and 3000-series machines. The PC software component requires an IBM PC AT, IBM 3270 PC or IBM 3270 PC AT.

Running on the IBM VM/IS operating system, the package's communications and administrative support is provided by IBM's Professional Office System (Profs). The new Profs Applications Support feature provides the interface between host and dependent displays and PCs, producing consistent displays for both.

The host word processing software is Displaywrite/370. Intelligent workstation support is provided by the 3270 file-transfer program. Networking support is the IBM remote spooling capability and IBM Pass-Through Facility.

The PC word processing software is Displaywrite 4, and host communications are handled by the IBM 3270 PC Emulation Program or the IBM 3270 PC Control Program.

IBM's Mondello, whose position as vice-president of office systems was created in the summer of 1986 to unify IBM's mid-range offerings, was careful to say that IBM does, in fact, have many additional pieces to add to its mid-range puzzle. "Solutionpac is a step toward fuller integration," be said.

Acknowledging that there are inconsistencies between the System/36 and VM versions, Mondello said, "In the Solutionpac, we are going to solve the problems of the seams between the products. We have varying degrees of ease of use. We're going to fix that."

The packages for the VM and System/36 environments are different in several respects. There are some differences in the menus, but the menus could be customized either by the user or by IBM, according to John McCarthy, an IBM program manager.

Decision Support Software (DSS) can be installed on both the VM host and an attached PC. In the System/36 version, however, the DSS can be installed on the attached PC only. However, a data base query function is available for PCs attached to a System/36 host as well as for the System/36 host.

Keyboard mapping is not the same on both systems, but a user may obtain a keyboard that is the same for all equipment, McCarthy said.

Documents can be sent between the two systems using IBM's Distributed Office Support System (Disoss), but the VM edition uses a Profs-Disoss bridge that is included in the version of Profs used in the package.

While praising IBM's general statement of direction, several industry observers were unimpressed with the Solutionpacs in comparison with the office packages sold by competing vendors. They also said it would be at least two years before IBM realizes its goal of mid-range uniformity and connectivity across two different architectures.

"These are primitive announcements, in my opinion. But they are significant in pointing to a direction," said Christine Hughes, vice-president of office technologies for the Gartner Group, Inc., a Stamford, Conn. -based research firm.

'Great concept — not complete'

"Solutionpacs are a great concept, although they are not complete yet," said George Colony of Forrester Research, Inc. in Cambridge, Mass. "There is incompatibility between menus, functions and keyboard mapping."

Colony pointed out that a key to closely coupling the two mid-range family branches is making Advanced Peer-to-Peer Networking, a peer-to-peer facility for the System/36 and 38, and TSAF, a VM-to-VM communications function announced with the 9370, work together. Essential to this is implementing LU6.2 on TSAF, which IBM's McCarthy called "a known requirement that we intend to address."

Colony estimated that creating peer-to-peer communications between the two architectures would take at least another 18 months.

Hardware additions roll out

IBM last week released details on new models of its fault-tolerant System/88, quietly introduced two weeks ago, and additional models in its System/36 and Series/1 lines.

The System/88 Models 50, 81, 82, 83 and 84 are based on the Stratus Computer, Inc. XA2000 series of transaction processors, announced earlier this month. The models, like the previous System/88 products, were designed for use as stand-alone mid-range processors or as fault-tolerant hosts or communication processors in an IBM Systems Network Architecture network.

IBM reportedly adds controllers and software to the Stratus processors before releasing the products as the System/88. One software package introduced with the new models was the System/88 Distributed System Services program, which allows a System/88 to communicate with an IBM Distributed Systems Executive (DSX) program running on an IBM 370-architecture host. DSX provides scheduling and tracking of central libraries.

The System/88 Model 50 is available now for $73,000. Models 81 through 84 will reportedly be available during the second quarter at base prices ranging from $81,200 to $342,000.

IBM's System/36 announcement included four low-end Model 5364s. Existing 5364s can be upgraded to the new models by swapping the original 40M-byte disk drive for a new 65M-byte storage unit, an IBM spokesman said. Upgrading the drive costs $3,095 for the first unit and $2,395 for a second unit, be said, noting that the old drive remains the property of the customer. In addition, the System/36 5362 Model C can now support increased storage of up to 600M bytes.

"This is a mid-life or an end-of-the-road kicker. I don't think there's any question that the 36 will be replaced in 1988," said Mark Webb, editor of "Scope/36," a user publication in Orlando, Fla.

IBM also announced two high-performance models of its Series/1 computer, the 4956 Model J and 4956 Model K. The Model J, priced at $23,000, and the Model K, priced at $17,000, are scheduled to be available this May. Field upgrades from existing models are scheduled to be available in July.

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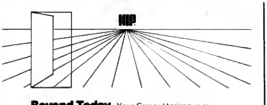

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Users back IBM mid-range strategy

BY ALAN ALPER
and JEAN S. BOZMAN
CW STAFF

NEW YORK — IBM equipment users polled last week gave hands-down support to Big Blue's mid-range strategy of offering a variety of computing architectures to serve a spectrum of applications.

Yet, while most users backed IBM's positioning of the System/36 and 38 and the 9370 as general-purpose computers, and the System/88 fault-tolerant processor, Series/1 minicomputer and RT Personal Computer as specialized systems, many conceded they had little choice but to go along with the company's strategy.

Many viewed Digital Equipment Corp., with its single-architecture approach to computing, as delivering a superior means of distributed data processing. Few said they would switch soon to DEC.

'A lot of resistance'

"If I was to take a DEC recommendation — or any other non-Blue proposal — upstairs, it would meet with a lot of resistance," observed Don Rems, data processing operations manager at Allen Products Co., a pet foods manufacturer in Allentown, Pa. "It's not that it is DEC or anyone else for that matter. It's just that it's not IBM."

Rems said at Allen Products, which uses an IBM 4361 Model 5 and a 4381, many DP professionals stick with IBM for the comfort of knowing that if a disaster strikes, they can shift production to a compatible system.

"People are willing to make a lot of concessions, even if in dollars and cents it costs more to stay with IBM," he said.

Many DP managers said connectivity, software and disk-storage enhancements made on IBM's mid-range systems were part of Big Blue's continuing effort to stave off inroads made by DEC and other minicomputer vendors into its customer base.

David Griffith, DP manager at Standard Chartered Bank in New York, said that while his corporation still leans toward IBM, it has installed DEC hardware to run a funds-transfer system. DEC salesmen, he added, have pushed harder of late to persuade him of the virtues of a VAX. "We've had to tell them, though, that it's bank gospel to stick with IBM," Griffith said.

Standard Chartered runs several large configurations of the System/36, Griffith reported. Although he is happy with IBM'a moves to upgrade main memory and disk storage, Griffith said he believes the System/36 will he phased out soon.

"I look at the upgrades as a short-term fix, but eventually we'll have to consider going with the System/38," he observed.

"Ignoring the political decision to stick with IBM, if we upgrade to a System/38, it would require a full rewrite," he said. "If you're doing all the rewriting, you might as well consider looking at a VAX. It would appear to he a better option."

Other System/36 users polled last week approved of IBM'a decision to equip the workhorse minicomputer with increased disk storage featuring faster data-access times. Many said the enhancements were another indication that IBM intends to maintain the minicomputer, at least in the short term.

"I feel safer than a year ago that IBM will continue to support the System/36," said Robert Ryan, DP manager at Dexter Corp.'s Hysol division in Olean, N.Y. "They are providing a path to make sure users don't lose their software investment."

Mike Frogratt, MIS manager at SL Industries, Inc. in Marlton, N.J., expressed satisfaction with the upgrades. Frogratt, who has witnessed the 17-year progression of the computer family from the System/3 through the System/38, said the System/36 has surpassed his expectations in terms of capacity and ease of use.

Frogratt is sticking with the System/36 despite the other hardware platforms IBM is offering. He expressed interest, though, in reports that IBM is readying a version of the 9370 that would run the System/36 operating system, SSP.

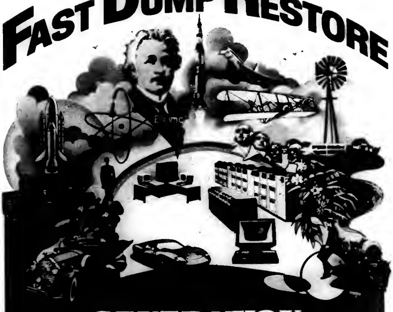
"If that happens, it would make a nice migration path to the 9370," Frogratt said.

Users of IBM's 4361 expressed little concern about the decision to discontinue that processor. "My basic feeling is that something is not obsolete unless it can't he used anymore," said Joe Denneen, DP manager at Fuji Photo Film U.S.A., Inc. in Elmsford, N.Y.

Jim Barber, information services manager of United Telephone Co. of Indiana, Inc. in Warsaw, Ind., added. "I don't see where IBM's announcement is going to change our plan. We expect that they'll continue to support the 4361 in the coming years."

United Telephone, a subsidiary of U.S Sprint Communications Co., has two IBM 4361s. One will be swapped for an IBM 4381 in a few weeks, Barber said, while the other remains dedicated to a repair system.

Denneen said that when it comes time to upgrade his 4361 in the next year or two, Fuji is going to take a hard look at the 9370. "The price/performance on that machine seems better than the 4381," he concluded.



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FROM PAGE 1

Prices start at $4,000. A fully configured model with a 40M-byte hard disk drive and an expansion unit with two full-size slots is slated to cost more than $6,000 and weigh more than 20 lbs.

Compaq said it plans to sell the machine to users interested in lighter portables, including many users considering laptop computers and those who need a full-featured desktop that can be carried easily. "We are making the weight and size penalty for carrying a computer around substantially lower," said Rod Canion, Compaq president. "We really have crossed the barrier where any man or woman can carry one of these around easily.

"This little bitty portable, which is smaller than the monitor on the IBM Personal Computer AT, can have a 40M-byte Winchester disk, vs. the AT's 30M-byte drive, and its speed is under 30 msec, vs. the AT's at under 40 msec," he added.

A light lunch

Few machines' designs resemble that of the new Compaq, which could pave the way for a family of Compaq portables. It uses the "lunch-box" approach, with a small footprint, a depth of 8 in., an 11-in. monitor and disk drives mounted on the side. It is not designed for use on a lap.

Of the machine's design, Canion said, "I think this form factor is an important one for the future. But it certainly is not the end of the road. We will have smaller, lighter and more powerful portables in the future."

Analysts called the machine an improvement over existing Compaq portables. "The screen has always been the problem with Compaq portables. This one has excellent resolution, better than on the Compaq Portable Computer," said Bill Kirwin, program director of personal computing policies and strategies at the Gartner Group, Inc. in Stamford, Conn.

"It changes the whole concept of portable computing. I don't have to make trade-offs any more," said Aaron Goldberg, vice-president of microcomputer services at Framingham, Mass.-based market research firm International Data Corp.

Word from the noncarriers

But not everybody believes the Compaq machine is a good buy. "It weighs 20 or so pounds without the expansion box, and it is not battery-operated at all. It is really a desktop, although slightly lighter, and you have got to wonder what the big deal is," said one source who saw the product before its announcement. The source, who asked not to be identified, was also concerned with the pricing of the Portable III, which ranges from $3,999 to $5,799 without the expansion box. "Why would you pay that for a desktop?" he asked.

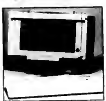
In conjunction with the Portable III announcement, Compaq also consolidated its portable line by discontinuing production of the Compaq Plus, a hard-disk version of its original Intel Corp. 8088-based system, and the Portable 286, the firm's first portable, based on Intel's 80286 chip.

Canion said the product consolidation is driven by the market and by the urgings of dealers who want to carry fewer products. "People who are buying hard-disk portables now are tending to go to 286 machines," he said.

"We felt we could serve the market two ways. One, by letting the dealers plug a hard disk on a card into the dual unit, or have them buy the lower priced Portable II."

The Compaq executive further explained that "the Portable 286 is completely overlapped now by the Portable II and III. The only other thing it really had was tape backup capability, and while the Portable II doesn't have that, we are working on offering something like tape backup capability on the Portable III."

Compaq Portable III specifications



Processor: Intel Corp. 80286, socket for 80287 math coprocessor

Processor Speed: 8 or 12 MHz

Keyboard: 84 keys

Display: Dual-mode gas plasma, 640 by 400 graphics and text modes

Memory: 640K-byte random-access memory

Weight: 18 to 20 lbs without expansion box

Price: $3,999 to $5,799

Disk Drives: One 5¼-in., 1.2M-byte floppy disk drive

Operating System: Microsoft Corp.'s MS-DOS 3.2

Options: 300/1,200 bit/sec. internal Hayes Microcomputer Products, Inc.-compatible modem, choice of 20M- or 40M-byte shock-mounted 3½-in. hard disk drive, 360K-byte, 5¼-in. floppy disk drive, plug-in expansion unit with two full-size slots, 2M-byte random-access memory board, 80287 math coprocessor.

CW CHART

Managers see portable on desks

BY DAVID BRIGHT
CW STAFF

While a few managers are balking at the price of the Portable III system announced last week by Compaq Computer Corp., a significant share may be attracted by the machine's high level of functionality.

In fact, some managers surveyed by *Computerworld* last week suggested that the 18-lb IBM Personal Computer AT-compatible machine will see extensive use as a desktop system as well as a portable one.

With its fast microprocessor, high-speed, high-capacity optional hard disk drive, industry standard 5¼-in. floppy disk drive, easy-to-read gas plasma display and optional capacity to accept two add-on boards, the system will at least warrant close inspection, managers said.

Not surprisingly, beta users were particularly enthusiastic. "This is the first lightweight portable I have seen that I would be happy to use as a desktop machine," said Walter Kennamer, a senior manager at Ernst & Whinney's national computer audit group at the company's Cleveland headquarters. "In fact, the portable that I had as a beta-test unit seems considerably more powerful than the Deskpro 286 that I was using," he said, noting that he had tested the unit only for two weeks.

"It's extremely fast, extremely quiet, and the keyboard is a standard layout that we're very comfortable with," added beta-test user John Seebach, head of national microcomputer functions at the Minneapolis office of accounting firm McGladrey, Hendricksen & Pullen. "It's much faster than the other 286 models that we have," he said, referring to machines based on Intel Corp.'s 80286 chip.

Another manager, who had been looking forward to the Portable III debut, held off from purchasing a competitive model — Toshiba Corp.'s popular T3100. "Even though we liked the Toshiba an awful lot, we held off, waiting to see what Compaq had to offer," said Hilarius Fuchs, information center director at Continental Grain Co. in New York. Echoing many managers, Fuchs noted that the only drawback to Toshiba's 15-lb system is its nonstandard 3½-in. floppy disk drive. Although it is heavier than the Toshiba T3100, Portable III's standard-size floppy disk drive could cause him to choose the Compaq machine, Fuchs admitted.

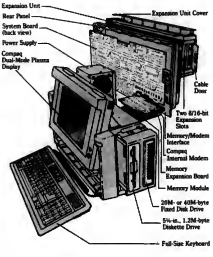
Because Fuchs would be linking the systems into a local-area network, he would have to buy the optional $199 expansion unit that attaches to the back of the machine. He stressed that, with Portable III prices beginning at $3,999, the machine is not for "the average Joe."

As far as Jeff Ehrlich is concerned, however, the Portable III is much too expensive. "It's for somebody who wants high speed in a portable and who has a lot of money," said Ehrlich, who is in charge of microcomputer evaluations at General Electric Co. in Bridgeport, Conn. "It's a high-end, premium, Mercedes kind of market."

Ehrlich claimed the visibility on some of the new supertwist LCD displays are as good as the gas plasma displays and can be better for long-term viewing. Other managers disagreed. Seebach said that the Portable III's gas plasma display is much better than supertwist LCDs and almost as good as a regular CRT. Kennamer added that the gas plasma display is "good enough" and should not be a serious drawback to long-term use.

Considering the machine's price and the limitation of two expansion slots, Cynthia MacLeod, a senior consultant with Deloitte, Haskins & Sells in New York, said that the Portable III will become a niche machine. "If I were looking for a desktop computer, I would buy a desktop computer," MacLeod stated.

Compaq Portable III



CW CHART: MITCHELL J. HAYES

HP posts slight increase in revenue, earnings

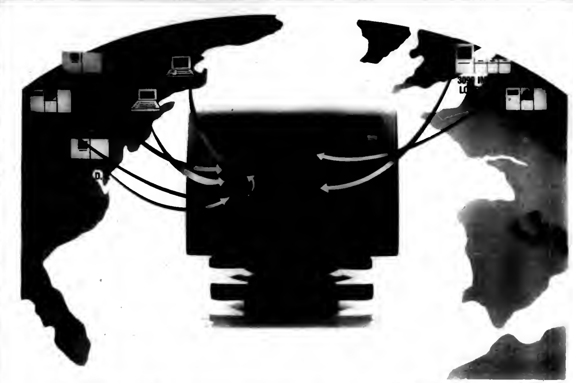
BY JAMES A. MARTIN
CW STAFF

PALO ALTO, Calif. — Hewlett-Packard Co. last week reported a slight increase in revenue and earnings for its first 1987 quarter ended Jan. 31.

Sales totaled $1.74 billion, compared with $1.6 billion for the same quarter last year. Net income was $116 million, or 45 cents per share, compared with $109 million, or 43 cents per share, a year ago.

The quarter was somewhat disappointing to HP as well as to several analysts. The company said its U.S. market was weakened from slow capital spending. But orders in Western Europe continued to show good growth due to strengthening markets and competitive pricing, according to HP President John Young.

But European revenues were disappointing as well, according to Peter Heymann, a technology analyst with Drexel Burnham Lambert, Inc. Overall, however, analysts say future quarters will be more positive. "They've made substantial headway in cost control, and they should be doing better in the next quarter after these one-time factors," Heymann said.



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AT&T works on flexible configuration

Tries to divert telecom users away from private T1 systems

BY ELISABETH HORWITT
CW STAFF

BASKING RIDGE, N.J. — Attempting to divert users from private T1 network systems, AT&T is expected within 12 months to provide dynamic bandwidth reconfiguration for its telecommunications services.

In the very near term, the company will reportedly announce a customer-premise T1 network switch that is compatible with its existing central-office Digital Access and Cross-Connect System (DACS) yet provides intelligent routing and bandwidth reallocation capabilities that Dacslacks.

A Tellabs, Inc. spokesman said that AT&T has agreed to act as OEM for Tellabs' intelligent customer-premise multiple T1 networking switch, which was recently released commercially by Tellabs as Crossnet. AT&T would neither confirm nor deny this.

The new capability for AT&T services is likely to be offered on an upgraded version of DACS, which will be installed in AT&T central offices by year's end, according to Richard Snowden, director of AT&T's Concept Development Center.

Snowden describes the future service as a "near real-time, speeded-up version of Customer Controlled Reconfiguration (CCR)." An existing feature of AT&T's Accunet family of wideband digital network services, CCR enables customers to reallocate bandwidth within their Accunet-based networks at preset times. "For example, you might want to rearrange your network to focus on your data centers at 5 p.m., when they'll be receiving a lot of batch transmissions," Snowden says.

Officially introduced by AT&T several years ago, CCR turned out to meet the needs of a small range of customers who "knew in advance what their networking bandwidth needs would be," but it failed to address a larger population of "customers that wanted to use the service for Systems Network Architecture [SNA] disaster recovery," Snowden explains. "If a line comes down on an SNA link, you have to reroute the bandwidth in seconds, not minutes, or else the system has to reboot, I'm told."

Saw needs 'after the fact'

AT&T only realized "after the fact" of CCR implementation on customer sites that a large percentage of users really needed "dynamic, near real-time configuration of bandwidth," Snowden says. "Providing that service is obviously among our high priorities right now."

Merrill Lynch & Co. is one disappointed CCR customer that is evaluating the private T1 equipment vendors' solutions in the absence of a real-time reconfiguration service from AT&T.

Approximately two and a half years ago, the financial service company decided to become a test site for CCR and a user of AT&T's Accunet T1.5 service, envisioning "a broadband network feeding into this dynamically switchable configuration," says Michael Loring, Merrill Lynch vice-president and group manager of telecommunications.

Merrill Lynch set up multiple Accunet T1.5 lines to carry voice and data between sites in six major cities and planned a two-pronged disaster-recovery system around CCR. First, if a link went down, voice traffic could be reallocated to an ordinary direct-distance dialing system, leaving more room for "critical data traffic," Loring explains. Secondly, triangular configurations would provide redundant linkages. For example, New York, Chicago and Philadelphia would all be linked directly to one another, so that if the New York-to-Chicago link went down, transmissions could be routed through the Philadelphia connection.

'More time and energy'

Then the company discovered that "CCR did not provide dynamic bandwidth reallocation, as we had first thought," Loring reports. "It takes more time and energy than we expected to re-engineer bandwidth on the fly."

Merrill Lynch is currently shopping for alternatives to Accunet and CCR, including private T1 networking equipment solutions.

Joaquin Gonzalez, a vice-president of the enterprise networking strategies group at Stamford, Conn., research firm Gartner Group, Inc., attributes AT&T's delays in offering dynamic reconfiguration partially to the basic design of DACS, the system that handles routing of T1 channels and 64K bit/sec. subchannels from AT&T central offices. "With DACS, you have to reconfigure bandwidth manually, which takes minutes; with a T1 switch from Network Equipment Technologies Co. or Cohesive Network Corp., it takes seconds," he explains.

"The current DACS architecture makes it difficult to reconfigure bandwidth in seconds," Snowden concedes, adding that AT&T is converting the DACS architecture this year. "That is just one of the real-time reconfiguration solutions we're currently considering," he says.

AT&T is currently doing "cheap and dirty trials" of different dynamic reconfiguration solutions installed on customer premises, Snowden says.

Tellabs' Crossnet, which will form the basis of AT&T's expected Acculink 740 introduction, was developed with technical support AT&T's Data Systems Division. The intelligent T1 switch supports up to 16 T1 links and features integral diagnostics, dynamic reconfiguration and automatic rerouting of 64K bit/sec. DSO channels around failed network nodes and links, Tellabs claimed.

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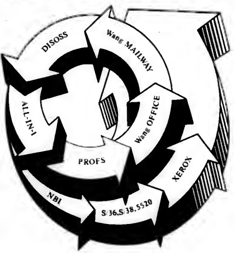

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* Washington University Center for the Study of Data Processing as reported in the 11/15/86 DATAMATION, pp 79-86.

Cullinet gains expertise, acquires Landry's firm

BY CHARLES BABCOCK
CW STAFF

WESTWOOD, Mass. — Cullinet Software, Inc. is expected to attempt to add expert system capabilities to its line of applications as a result of the acquisition of Distribution Management Systems, Inc. (DMS), the firm chaired by noted software developer John Landry.

Cullinet announced last week it was acquiring the small Lexington, Mass.-based company for more than 1.6 million new shares of Cullinet stock, which closed last Wednesday at $10.63. The market value of the shares indicates the deal is worth $18 million. The deal will not be executed until after a 60- to 90-day period to meet Securities and Exchange Commission registration requirements.

The acquisition comes 18 months after Landry, DMS President Bob Weiler and a group of software developers left McCormack & Dodge Corp. to take over DMS with the backing of a venture capital group.

At the time, DMS was a sleepy inventory-control and logistics-management software vendor that garnered $6 million in sales in fiscal 1985.

Under the Landry-Weiler regime, DMS expanded its distribution product line and added a Cobol-based expert system development product called Impact/Application Expert. This product was used to add expert system capability to the DMS product line and was put on the market as a development system capable of creating systems that could be tied to mainframe data bases or embedded in existing Cobol applications.

Cullinet, which has been establishing itself as an applications vendor, will be able to produce "a different kind of application, one embedding expert systems," according to Esther Dyson, publisher of the "Release 1.0" newsletter in New York.

Jeff Papows, vice-president of marketing at Cullinet, was unable to comment on what the acquisition might do for Cullinet's product line due to a silent period imposed by SEC regulations. But he noted that applications constituted 18% of Cullinet's business last year and are expected to grow to 25% to 30% of this year's revenue.

Although some observers speculated that Landry is unlikely to stay within the confines of a large organization for very long, Landry commented, "I've worked in a large software company and I've run a small software company. I prefer being in a large company."

Firm reports third straight losing quarter

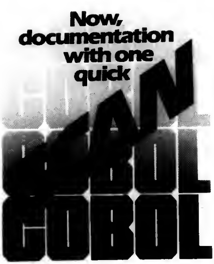
BY CLINTON WILDER
CW STAFF

WESTWOOD, Mass. — Although it continues to build for the future with acquisitions, Cullinet Software, Inc. last week reported its third straight losing quarter.

For its third quarter ended Jan. 31, the mainframe data base management vendor posted a loss of $4.9 million, or 16 cents per share, on revenue that dropped 4% from year-earlier levels to $43 million. One year earlier, Cullinet reported a profit of $3.8 million, or 13 cents per share.

Cullinet had announced earlier that it expects to post another loss in the current quarter ending April 30.

Cullinet Chief Executive Officer David Chapman said sales of applications software grew to 27% of the firm's revenue in the third quarter, compared with 19% a year earlier.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ADR to link SQL, DBMS

Buys PC-based relational technology, plans end-user tools

BY CHARLES BABCOCK
CW STAFF

PRINCETON, N.J. — Applied Data Research, Inc. (ADR) has acquired a personal computer-based relational data base management system from which it plans to derive an SQL language for use with its mainframe DBMS, Datacom/DB.

Eventually, the firm will also provide an end-user set of tools for applications development and a PC-based relational DBMS, ADR officials said.

Joseph W. Farrelly, vice-president of research and development, said last week that ADR has acquired the rights to XDB, a relational DBMS from Software Systems Technology, Inc., a tiny development firm in College Park, Md.

The little-known XDB was developed under the direction of Software Systems Technology President S. Bing Yao, an associate professor at the University of Maryland. Yao's research on SQL query optimization has been incorporated into XDB, according to company spokesmen.

Software Systems Technology, with fewer than 10 full-time employees, does not have a direct sales force and has few large corporate customers. However, 50 copies of the $750 product have been sold to the National Aeronautics and Space Administration, Software Systems spokesman Kim Ball said.

In addition to a relational DBMS, ADR acquired a set of tools that it eventually plans to offer as an end-user applications development tool kit. The XDB tools include a report writer, forms manager, menu generator and data import/export facility.

No date was set for when the PC-based products might become available, but Farrelly indicated ADR's first priority will be to produce a mainframe implementation of XDB's SQL. ADR's implementation will meet the American National Standards Institute standard for SQL. SQL was originated by IBM as Structured Query Language.

XDB's SQL engine offers strong performance characteristics, which will be extended to a line of PC and local-area network products that ADR committed itself to develop last September, Farrelly claimed.

One of the first products scheduled to emerge from that commitment this March is Ideal Escort, a PC version of ADR's fourth-generation language Ideal.

The project is on schedule with eight beta-test users lined up, according to Farrelly.

In contrast to the data processing-oriented Ideal and Datacom/DB, ADR seeks to offer an end-user applications development capability through highly automated screens and menus via the XDB tools.

Initially, this tool set would not work in tandem with ADR's mainframe product line, Farrelly acknowledged.

AT&T aims 80286-based AT clone at workstation market

BY ALAN J. RYAN
CW STAFF

MORRISTOWN, N.J. — AT&T last week rolled out its latest personal computer offering — this one an IBM Personal Computer AT clone.

The AT&T PC 6310 uses the Intel Corp. 80286 processor and is aimed at the Microsoft Corp. MS-DOS and IBM PC-DOS workstation market, according to spokesman Mark Siegel.

"It is meant to be an AT-compatible machine," Siegel said. The PC 6310 "is designed to run with all the software that runs on the AT. We did that to meet the needs of an increasing number of customers who specified they want AT compatibility in their computers," he claimed.

The units will be manufactured in Italy by Ing C. Olivetti & Co., and prices start at $3,045 for the 1.2M-byte floppy-disk 512K-byte random-access memory (RAM) Model 31.

For the Model 31 with monochrome monitor, keyboard and MS-DOS 3.2, the price tag would be $3,590.

The spokesman said that in comparison to IBM's AT offering, "it is a very similar machine. We do offer the Intel 80286 chip, which offers some advantages, and we offer a one-year on-site warranty." He added that the PC 6310 is priced slightly below IBM's AT.

AT&T said the unit is compatible with "virtually all peripherals and MS-DOS and PC-DOS applications software written for the IBM PC AT."

The PC 6310 is available in 20M-, 40M- and 68M-byte hard-disk versions with a 1.2M-byte floppy disk drive. It also has space for a third drive and up to 80M bytes of storage.

Networking capabilities

The microcomputer features such attributes as high-resolution graphics — 640 by 400 pixels — and networking capabilities, the vendor said.

It can link to other computers and outside information sources, including the AT&T Starlan local-area network, up to four RS-232C serial connectors and Systems Network Architecture/Binary Synchronous Communication and other terminal emulation software and hardware.

Other single-quantity prices are as follows: the Model 32, with a 20M-byte hard disk, 1.2M-byte floppy and 512K-byte RAM sells for $3,995; the Model 34 with a 40M-byte hard disk, 1.2M-byte floppy and 512K bytes of RAM costs $4,995; and the Model 36 with a 68M-byte hard disk, 1.2M-byte floppy and 1M byte of RAM sells for $5,795.

All models have 512K bytes of RAM, expandable to 1M byte on the motherboard and up to 7M bytes using plug-in memory cards.

Optional equipment includes the Model 303 keyboard for $195, a monochrome monitor for $255, color monitor at $795 and MS-DOS 3.2 for $95.

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Concurrent DOS vies for UK PC standard

BY JANE LAWRENCE
SPECIAL TO CW

BIRMINGHAM, England — Digital Research, Inc.'s recently announced Concurrent DOS 386 [CW, Feb. 16] is bucking to become the standard multiuser operating system for UK personal computers based on Intel Corp.'a 80386.

Visitors at the Which Computer? show bere last week saw the launch of 80386-based systems by Apricot PLC, Comart Ltd. and Jarogate Ltd.

All of the computers were shown running the UK-developed Digital Research operating system.

At the same time, Digital Research conceded that IBM PC-DOS compatibility on Concurrent DOS 386, which is scheduled to be available March 9, is still limited, but the company has pledged to work on improvements.

According to Digital Research founder Gary Kildall, "These compatibility issues are going to be solved. We will eventually be as compatible with DOS through Version 3.2 as you can be on a multiuser system."

Kildall hinted that the company would introduce other variant operating systems based on Concurrent DOS 386 technology, as well as a multitasking version of its GEM graphics-oriented operating environment, by year's end.

As other control programs, Concurrent DOS 386 uses the virtual 8086 mode of the Intel 80386 microprocessor. This means that memory available for each program is limited to 384K bytes by operating system and video overhead.

"As Concurrent evolves, we will create more space for program code by putting the operating system itself in protected memory," Kildall said.

According to Roger Howarth, sales and marketing director for Comart, "DOS 386 is the leading microcomputer, multiuser operating system."

Comart's CP3000 system, set to be introduced in March, uses serial terminals and features 700K bytes of memory per task.

Jarogate will offer Concurrent DOS 386 in a multiuser system and also as an option for its 80386-based Sprite PC, which is targeted for availability next month.

Apricot is offering Microsoft Corp.'s Xenix on its $10,250 VX multiuser systems, but it also plans to offer Concurrent DOS 386 through Axis Systems Ltd. of Somerset, England.

Lawrence writes for *PC Business World*, a CW Communications, Inc. British publication.

Hercules boasts color version of graphics card

BY DAVID BRIGHT
CW STAFF

BERKELEY, Calif. — Hoping to strengthen its reputation as a standards setter for personal computer graphics, Hercules Computer Technology, Inc. is scheduled next week to introduce a color version of its Hercules Graphics Card Plus.

According to Hercules President Kevin Jenkins, the new Incolor Card is "a logical extension of the graphics and Ramfont standards we've created with our monochrome cards." The $499 board has better graphics resolution and a more sophisticated programmable text mode than IBM'a Enhanced Graphics Adapter card, Jenkins claimed.

The board is said to be compatible with all standard text programs, programs that support the Hercules monochrome graphics standard and programs that use the Hercules Ramfont display mode.

Programmers can easily adjust applications that support the Hercules monochrome atandard to display full color, according to the vendor. Jenkins said be expects most popular programs that require a full-color display will support the Incolor Card by the targeted shipping date of May 1. Color software drivers have already been developed for Lotus Development Corp.'a 1-2-3 and Symphony, Autodesk, Inc.'a Autocad and Microsoft Corp. Windows applications, Jenkins said.

The new card can display 16 colors out of a 64-color palette, with a resolution of 720 pixels by 348 pixels. Applications can also be displayed in white-on-black or in two other user-selected colors.

The Incolor Card supports an expanded version of the Ramfont display mode. With Ramfont, an application program can access a library of as many as 3,072 software-definable characters or patterns. In two colors, as many as 12,288 of the custom characters can be displayed.

By using Ramfont to store graphics characters such as italics, boldface and other font types, many programs are said to run faster, because the characters no longer need to be created on the fly.

The board requires a multisynch color monitor and is said to meet the specifications of the IBM Enhanced Color Display.

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The terminals give technicians access to Ford's service information database, which they use to diagnose and repair customers' vehicles quickly and accurately. Repairs are done right the first time. In fact, Ford has found the Silent 700 so reliable and cost-efficient that over 4,000 Ford, Lincoln and Mercury dealers now access the OASIS network with the TI terminal.

Each Model 707 terminal is equipped with an auto access cartridge programmed to gain access to the OASIS database. Therefore, the Model 707 is easy to use. It's small enough to fit anywhere on a service bench, and its construction is tough enough to stand up to life in the service lane.

Ford Motor Company is not the only major corporation putting TI's terminals to work as access tools. Other companies use the Silent 700 Series to eliminate telephone tag, communicate with their computers, provide instant diagnostics or specifications to the field. If you have remote communication needs, talk to us about our family of portable data terminals.

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Phoenix Technologies joins the hunt for pirates

Software firm launches successful campaign against Ultimate Business Systems

BY CLINTON WILDER
CW STAFF

NORWOOD, Mass. — Phoenix Technologies, Inc., developer of IBM compatibility software for several leading microcomputer clone makers, has become the latest software company to launch an antipiracy campaign against copiers of its products in the U.S. and Canada.

Phoenix Technologies is expected to announce today that a Toronto-based clone maker has agreed to stop producing illegal copies of the IBM-compatible read-only memory (ROM) BIOS that Phoenix licenses to manufacturers of IBM-compatible micros.

Phoenix said the settlement with Ultimate Business Systems is intended as a signal to other firms that Phoenix claims are pirating its products.

"We believe another 40 to 50 potential companies may be in violation in Asia, Canada and the U.S.," Phoenix President Theodore Joseph said. "We plan to be very vigorous on enforcing our rights."

> PHOENIX Technologies has worked closely with the Royal Canadian Mounted Police and other Canadian authorities in a four-month investigation of suspected pirates.

Phoenix is the market leader in its niche, licensing its ROM BIOS to IBM-compatible vendors such as Tandy Corp., Kaypro Corp., Leading Edge Computer Products, Inc., Wang Laboratories, Inc., Texas Instruments, Inc., NEC Corp. and Hewlett-Packard Co. Although Phoenix is itself, in a sense, a "cloner" of IBM software, Joseph said Phoenix believes illegitimate copying of its products is a very different matter.

"The closer you get to becoming an industry standard, the more inevitable it is that this will happen," he said. "Our own product development was more than simply building a BIOS. We went to tremendous expense to assure that we were within clear legal boundaries in designing IBM compatibility."

Phoenix has worked closely with the Royal Canadian Mounted Police and other Canadian authorities in a four-month investigation of Ultimate Business Systems and other suspected pirates.

Ultimate agreed to cease copying, return pirated copies of Phoenix software and pay Phoenix an undisclosed cash settlement.

Discovering pirates through users

Stephen Abt, marketing manager for compatibility software for Phoenix, said the firm has become aware of some instances of piracy from users of micros purchased with an illegally copied Phoenix BIOS.

"The users believe they are getting our BIOS and aren't cognizant of the piracy," he said. "When they call us for an update or technical support, then they find out it'a a stolen copy."

Joseph said illegal BIOS copying would continue unchecked without legal action by Phoenix. "This will carry forward into the Intel Corp. 80386 arena as well," he said. "There is the potential for a lot more abuse unless we get the situation fixed now."

Although Phoenix itself is pursuing civil actions against suspected pirates, Canadian police have filed criminal charges in certain cases under that nation's consumer fraud atatutes.

"In Canada, it is considered a criminal offense to use someone else's trade name," said Fred Myers, an attorney with the Toronto law firm of Osler, Hoskin and Harcourt, which is representing Phoenix. "To the extent that someone takes a computer program and puts his own name on it, the state may find him running afoul of the criminal statute."

Software vendor offers rewards

In an unrelated software piracy development, micro accounting software vendor Open Systems, Inc. has begun an antipiracy campaign that includes rewards for end users who discover copies of pirated programs.

Eden Prairie, Minn.-based Open Systems has offered free replacement software and one year of support to the first user who reports a suspected illegal copy and cooperates with Open Systems.

Open Systems counsel Mary Rukavina said the compensation offer helped the vendor win a recent $40,000 settlement from Vistaco, Inc., a Gainesville, Fla., reseller that Open Systems charged with illegal duplication in January.

Open Systems, a subsidiary of Convergent Technologies, Inc., has also filed piracy claims against two Quebec-based firms.

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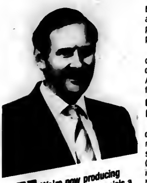


"We're now producing consolidated financials a full week earlier, without special programming, changing cut-off dates, or adding resources."

Bill Galloway
Applications Support Analyst
Canfor Corporation
Vancouver, British Columbia

Relations have never been better between data processing personnel and accounting users at Canfor Corporation, Canada's $1 billion forest products producer.

The reason? "Walker financial applications meet the often conflicting needs of both groups," explains Bill Galloway, Applications Support Analyst. So even fiery tempers are tamed.

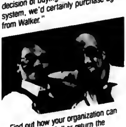
GOODBYE DATA PROCESSING DISPUTES: Twenty divisions, with separate sets of books, went into production simultaneously. "Many DP managers were skeptical about this working," explains Galloway. "In fact, installation and implementation went very smoothly, far better than anticipated."

Support for the company's evolving DP environment is an ongoing concern. "During system testing, we switched from IDMS to VSAM, without a problem. In six months," says Galloway, "we'll convert from DOS/VSE to OS/MVS. We're relieved Walker can support us in either environment."

HELLO USER CONTROL: Walker's accounting control key lets users change the data dictionary as needed. According to Galloway "essential data elements, such as division, cost center, location, mill, and section, can be represented with only one or two characters. With up to 50 user-definable characters available, almost any information can be accommodated efficiently."

Report turnaround has improved dramatically. "We delivered a budget-versus-variance-report in a single afternoon, exceeding expected delivery time by a month," explains Galloway.

Galloway sums up: "Walker's flexibility, feature-rich products, and solid technical support give us a competitive advantage. If faced today with the decision of buying a financial software system, we'd certainly purchase again from Walker."



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EDITORIAL

Reality check

Without question, the key technological issue facing information managers now and for the foreseeable future is networking. The ability to link similar and disparate systems, provide efficient peer-to-peer and peer-to-host communications and take fullest advantage of the fruits of communications deregulation is the joint challenge for vendors and users alike.

One need not look hard to see just how far along the industry has come in providing the kinds of solutions users seek, or, more important, how far it has to go. The headlines 'Users skeptical about ISDN benefits, support,' 'Token-Ring keys missing' and 'Reluctant support for Netview PC' all appeared in one issue of *Computerworld* following the recent Communication and Networks Conference and Exposition.

Each case yields the uneasy feeling that users lack measurable confidence in the range of network solutions available. But on closer look, it appears that what really exists is a reality gap between what users want and what the vendor community can provide.

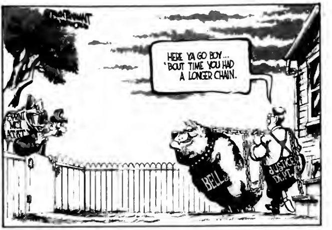
Increasingly networking equipment acquisitions are being directed away from component sales and toward complete and integrated system sales: Within the vendor community, the drive to provide integrated offerings has received its greatest boost in the last year from the performance of Digital Equipment Corp., the industry's most successful big company in that time. Its success is owed largely to the womb-to-tomb, relatively seamless total solution DEC offers, a solution based on a cohesive networking strategy.

There is tremendous pressure on DEC's competitors, most notably IBM, to bring a similar total-solution approach to the market. One of the more provocative conference sessions at Comnet was one at which an IBM representative was on the hot seat defending his company's Token-Ring commitment.

Apart from deflecting the arrows launched by Starlan supporters, the IBM rep spoke more subtly of a broader theme: That the kinds of network solutions for which so many users clamor are really two or three years away; that even a behemoth like IBM with so much at stake in providing these solutions won't do so overnight.

There are encouraging signs that the vendor community is indeed responding to larger elements of the network challenge. AT&T this month launched the first-ever ISDN-compatible private-branch exchange for the U.S. market, a move that vaults AT&T to the bead of the PBX class.

Still, information professionals whose departments have been so tightly squeezed by declining capital budgets feel great pressure to get a more measurable return than ever from equipment outlays. Better, perhaps to take heed from the old WIN, or "Whip Inflation Now," campaign of former President Gerald Ford. One of his political opponents turned the acronym on its head to read NIM — No Immediate Miracles.



LETTERS TO THE EDITOR

First priorities

In his article, "Learn to profit from customized software contract mistakes" [CW, Nov. 3], Alonzo D. Saunders implies that what is crucial in a copyright infringement case is the priority of filing the application for copyright registration.

Indeed, he claims there "is little doubt that had the developer delayed filing, or had the lab filed for copyright first, the result would have been the opposite, given the similarity between the two programs." Saunders is surely mistaken.

Whereas the priority of filing is relevant in trademark actions before the Patent and Trademark Office and Trademark Trial and Appeals Board, priority of filing is not relevant in a federal court action for copyright infringement.

If the developer wrote the program first and the lab copied or prepared a derivative work from the developer's program (to create a Basic version from an EDL version), then the lab was guilty of copyright infringement regardless of when the respective filings took place or even if the filings occurred.

Of course, copyright law prohibits the bringing of a copyright infringement action until the author of the infringed work registers the copyright. But once that is done, the time of filing is irrelevant, except for determining what statutory damages or attorneys' fees may be recovered. An infringement of a work, copyrights that are registered after registration of the infringing work, is still an infringement.

Howard G. Zaharoff
Brown, Rudnick,
Freed & Gesmer
Boston

Making monopolies

In regard to your editorial, "The look and feel of a can of worms" [CW, Jan. 26], Apple Computer, Inc.'s threats to discourage anything that looks like a Macintosh and Lotus Development Corp.'s suits against 1-2-3 look-alikes may make good business sense but are little more than attempts to pull up the gangplank now that they are on board the ship. The problem is that they are trying to make it appear that their products are islands in a sea of unrelated personal computer products.

The respective products of these companies are not new but are merely extensions of previous products.

While they are arguing that they are protecting the innovators, in reality they are attempts to create monopolies.

If Xerox Corp. with the Star or Dan Bricklin with Visicalc had decided on using the courts to protect the "look and feel" of their products, the Macintosh and 1-2-3 would look much different than they do today and may not have enjoyed their current success.

The personal computer has prospered by incremental growth, as hardware and software have grown piece by piece in an attempt to create productive and useful tools.

To use the "look and feel" of a computer program as a protected function creates two risks for the future of the entire data processing industry. If every new product must look and feel different from its predecessors, the current computer Babel will grow. Instead of building upon existing patterns, users will be asked to relearn the basics for each improvement or extension in function.

A second risk is that if the look and feel become the only criteria for copyright infringement, what is to prevent a developer from rushing a product to market with a look and feel to establish preeminence? The developer can then return to the development process to finish the hardware and software to make it work.

There is no product on the market today that does absolutely everything users want. To carve up the market and make all innovation be presented from outside the current frames of reference will stunt the data processing industry in its infancy. The actions by Apple and Lotus will only protect Apple and Lotus, not the DP industry.

D.A. Hult
Chicago

This week in history

Feb. 28, 1977:
The National Commission on EFT called for legislation giving individuals the right to contest any government access to their financial information contained in electronic funds transfer (EFT) systems.

Feb. 22, 1982
SAS Institute, Inc.'s Statistical Analysis System saves California about $30 million with a computerized sentence review, which compares sentences given to offenders charged with similar crimes. The state cuts some prisoners' sentences after reviewing the statistics.

The 'Knows' vs. the 'Don't Knows'

How to cope with users who potentially threaten corporate continuity

READER'S PLATFORM

NAOMI KARTEN

They don't all result in lawsuits and they don't all make Page 1. But you can be sure that many applications developed by users are spewing out faulty results because of errors innocently introduced by users who didn't know any better. This situation occurs because there are two types of users: Those who know what they don't know and those who don't know what they don't know.

The users who know what they don't know aren't hesitant to ask questions or to admit they're baffled. They worry that they're wrong until proven right. When they get stuck, they're willing to take things slowly. They realize that the more they learn, the more there is to learn.

But the others, the ones who don't know what they don't know, are the ones we have to worry about. There are two categories of users who don't know what they don't know: Those who assume they know nothing, and those who think they know everything.

Panic-mode phone calls

The ones who assume they know nothing (even though they usually know at least a little) may interrupt you constantly, but they aren't really considered a problem. When these users run into a snag, they make a panic-mode phone call to the information center. Or they besiege the nearest breathing person with a plaintive plea for help. One way or another, they seek the help they need.

The ones who think they know everything can be a real problem. There are two types of users who think they know it all: Those who keep what they know to themselves, and those who miss no opportunity to let you know what *they* know.

The latter constantly offer useless advice and unhelpful hints. They're full of "you should haves." No matter what it is you've done, they have a better way. Two weeks on a computer and they think they're on a par with 20-year veterans. A handful of 3-by-5 spreadsheets and an ad hoc report and they're spouting advice on how to design mammoth mainframe data bases.

These users can give new meaning to the urge to scream. Nothing you can tell them makes a difference. In their view, you're the one who's misinformed and misguided, and they're only trying to help.

Evil thoughts

These users are just cause for evil thoughts. But they're not a problem — not in a business sense. That's because they hold nothing back. You always know what they're thinking, whether you want to or not. And every once in a while when they call to inform you of something you "should have known," it really is just that.

It's the users who keep to themselves that we have to worry about.

You never know what they're up to. They neither give advice — they figure you're too dimwitted to understand — nor do they seek it.

> THE information center can't be everywhere helping everybody do everything. If users are going to use computers, they must be required to take responsibility for the intelligent use of them.

There are two types of users who keep to themselves: Those who aren't doing anything that matters with their computer and those who are doing critical things.

Piddling

Those who aren't doing anything that matters are certainly not a problem. They can piddle away all day at their keyboard and make much ado over very little. They may be wasting the company's time, but they're endangering no one.

The other type, the ones who are doing critical things with their computer, are the ones to be truly concerned about.

They're the ones that are developing applications that generate results that will contribute to major corporate decisions. They manage to parade their feelings of superiority. They make it perfectly clear, however, that they don't want or need any help from MIS.

So they blunder along, certain they know what they're doing. In the process, they create colossal chaos. With any luck, they're simply using resources inefficiently.

But the bigger risk is that they're developing bad applications. Applications based on faulty assumptions or insufficient analysis. Applications with flawed logic or untested data manipulations. Applications subject to security breaches or conducive to keying errors. Nevertheless, the printed output quickly wends its way into the hands of management who blithely uses the letter-perfect, smudge-free data to make important business decisions.

Discovered snafus

If a snafu results, and it's discovered, and it's big enough buckwise, and the company doesn't fear adverse publicity, then it may make the Lawsuit-of-the-Week page of your favorite publication.

But many more snafus are squelched than reach the public eye. And many more snafus — many, *many* more — are never discovered. They may hurt the company, but not in a direct or traceable way. So no one is ever the wiser.

Information centers have their hands full with users who really want their help. But information centers shouldn't minimize the importance of educating the snafu-bound users who want nothing to do with their help. These users don't know what they don't know, think they know it all, keep to themselves and are doing critical things with their computers. They may be few in number, but they are a potential threat to corporate continuity.

Tips and techniques

Techniques must be subtle: a friendly tip, an off-hand reference to a technique, a few extra copies of the information center newsletter, an invitation to a demo or users group meeting, an article on the potential for errors sent to the user manager with a casually affixed "thought you might find this interesting."

Plus — and this is an absolute key to successful end-user computing — user management must be held accountable for the responsible use of computers in their departments and divisions. The information center can show them how.

But the information center can't be everywhere helping everybody do everything. If users are going to use computers, they must be required to take responsibility for the intelligent use of them.

This policy won't eliminate the problem user. But it can help boost the output of user-developed applications a few notches higher on the Scale of Trustworthy Results.

Karten, president of Karten Associates in Randolph, Mass., consults and lectures on the management of end-user computing. She is a former MIS and information center manager and has published more than 50 articles on end-user computing.

The most honorable form of flattery

HARVEY NEWQUIST

Since about 1982, the U.S. electronics industry has been a little, shall we say, upset with Japan. It's not necessarily just Japan, but all the countries we mean when we say Japan — Korea, Taiwan, Singapore, the People's Republic of China and, of course, Japan.

Actually, we should refer to this group as the Pacific Basin countries, because often when we say Japan, we mean foreign manufacturers in general. Even when we talk about "overseas" manufacturers, we mean those countries that are part of the American continents.

All of these countries are thorns in the side of high technology in the U.S. But Japan — the country — has actually created a program known as the Fifth-Generation Project. Begun in 1981, it is designed to give the Japanese a jump on the rest of the world by concentrating on the next level of computing.

Most of Japan's leading companies joined the project, which is actually a consortium of the best young corporate researchers. It is the first time Japan has attempted to develop a radically new technology on its own, without waiting to emulate the product success of other developers.

The Fifth-Generation Project is the brainchild of the Ministry of International Trade and Industry, which gave it its official name, the Institute for New Generation Computer Technology, or ICOT.

The next big thing

The Japanese realize that in order to really take control of the world's technology reins, they need to beat everybody else to the next big thing. These "big things" have come to be known as "generations." The first generation was the development of vacuum tube technology. The second generation brought us transistors, while the third saw the implementation of integrated circuits. The world has just jumped to the fourth generation with the use of very large-scale integrated (VLSI) circuits.

VLSI technology, the current commercial state of the art, is already prompting us to yearn for the next thing, the fifth generation. You say you're yearning, but you don't know exactly what for? Don't worry, the Japanese have figured it out for all concerned. The next obvious step is creating computers that can reason like human beings. Voila! The fifth generation is going to produce intelligent machines. Terms like knowledge bases, logical inferences per second and artificial intelligence are the bases of the project.

The ICOT program calls for a 10-year study, financed by about $213 million. That's not a lot of money in terms of a 10-year plan, but enough to scare the U.S. research and development community in the early 1980s. Prompted by a slew of literature that prophesied a technological Pearl Harbor, the U.S. took notice. The results of this frenzy were the creation of the Microelectronics Computer Technology Corp. and, to a much lesser extent, the Star Wars program.

Quite a few of Japan's leading corporations joined ICOT, and they've had to give some of their foremost talent to the institute. However, this is where the Japanese are running into a little bit of trouble. Sure, they're taking the best and the brightest and putting them into a huge think tank to encourage creativity. Sure, they're throwing millions of dollars into the effort. They're giving it 10 years. And they're asking individuals to be creative in a society that has accepted only group-think methods, traditionalism and conservativism since long before George Washington started confessing to crimes involving cherry trees.

The most original original

Thus, a fundamental problem arises. The Japanese are the best imitators in the world. Their imitations usually better the original. But they very rarely come up with an original. The Japanese government now wants to come up with the most original original of all time and is trying to do it by hoping that the best minds will start thinking differently than they ever have before.

I'm not saying that the Japanese won't produce intelligent machines; I just think that given the nature of the culture, they probably won't come up with them first. It's kind of like expecting a bulldog to fly because you give it a set of gold wings.

The fifth generation is a noble goal, however, and it does bear some watching by all who are concerned about who is really going to make the breakthrough to intelligent machines. The real problem is that if someone else comes up with truly intelligent machines, the Japanese will probably make a better one 20 minutes later.

Newquist writes and consults on artificial intelligence and other advanced high-technology topics from his office in Scottsdale, Ariz.

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SOFTWARE & SERVICES

Vendors quick to respond to DEC 2000

BY NINAMARY BUBA MAGINNIS
CW STAFF

MAYNARD, Mass. — Although the announcement of Digital Equipment Corp.'s low-end, busless Microvax 2000 and Vaxstation 2000 is less than two weeks old, more than 30 third-party vendors have already announced software packages to run on the processors.

Software choices range from computer-aided design and manufacturing (CAD/CAM) packages to scientific data analysis applications to full hardware and software systems offered from value-added resellers.

The newest VAX systems operate with DEC's proprietary VMS operating system or Ultrix, the firm's Unix operating system. Applications written for the VAX/VMS environment can run on the 2000-series systems, the vendor reported.

For the Vaxstation, Tektronix, Inc.'s Case division announced its SA/Real-Time Tools, a structured analysis application, and SD Tools, a structured design package. The Tektronix Computer-Aided Engineering (CAE) Systems Division offers its Designer's Database Schematic Capture (DDSC) and Hilo-3 Logic Simulation packages for both 2000-series machines.

DEC's 2000-series workstation operates the Mountain

Continued on page 20

Librarian eases programming

BY CHARLES BABCOCK
CW STAFF

PRINCETON, N.J. — An enhanced release of Applied Data Research, Inc.'s (ADR) Librarian offers a redesigned interface to users of IBM's ISPF on-line programming environment and extends the product's Change Control Facility to IBM's TSO teleprocessing monitor.

Librarian's Change Control Facility provides automatic controls of the updating of production source-code modules, offers a source code to production-load module audit trail and can compare a production-load module with a source module and report any discrepancies, according to Richard J. Parente, Librarian product manager.

The Change Control Facility, introduced last year, was previously available to run with ADR's own development environment, Roscoe. It can now run with TSO/E Version 2 and is fully compatible with the Roscoe version.

The Change Control Facility will inform a programmer who wants to update a source-code module if someone else is already modifying the module, Parente said. Discretion of how two or more updates will take place remains in the hands of the installing site.

"We don't dictate how to manage all the changes in an update cycle. The Change Control Facility installer selects how he wants to do it," Parente claimed.

The comparison program that is now part of the Change Control Facility is able to print out the exceptions that appear when a production-load module no longer matches the source module.

"Before, you would have to go back to a dump of the program and look for discrepancies. But you wouldn't necessarily know which version of the program you were looking at," Parente explained.

VM version to come

An additional version of Librarian's Change Control Facility, the Conversational Monitor, is under development for use with IBM's VM operating system, according to Parente. A redesigned interface to IBM's popular ISPF/Program Development Facility is also available with Librarian Release 3.6.

The current interface allows a programmer to perform all Librarian functions from a single ISPF-type panel. The previous interface involved a more cumbersome process of copying Librarian master files into an ISPF partitioned data set, Parente said.

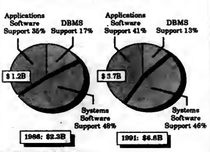
"The new release gives a programmer the capability to edit a module directly, to BROWSE, MOVE or COPY it. It offers a

Continued on page 20

Data View

Software support market headed for $6.8 billion

Software support is an industry still in its formative stages, with few third-party vendors



INFORMATION PROVIDED BY INPUT, INC.
CW CHART

Users gain SQL access

Britton Lee, Inc. has announced a menu-driven structured query language (SQL) generator that allows personal computer users to access data bases stored on Britton Lee relational data base systems. **PC/SQL Link** uses windows and menus to help generate SQL requests to users who are not trained SQL programmers.

Cadre Technologies, Inc. in Providence, R.I., has acquired the rights to market **Structsoft, Inc.'s PC Structured Analysis**. The Yourdon/DeMarco structured analysis software from the Parsippany, N.J., firm extends Cadre's software development tool kit to the personal computer marketplace.

The Cobol 85 Example Book, by **Jerome Garfunkle**, a member of the **American National Standards Institute X3.23 Cobol committee**, was recently published. In addition, Garfunkle announced that he has joined forces with the UK's Cobol authority, John Triance, to form a company to teach advanced programming techniques.

Inside

- Data Retrieval ports TextDBMS to VAX. Page 21.
- Maxway Data releases book publishing software for System/34,36,38. Page 24.
- Device drivers for DEC laser printers out. Page 25.

Advertisement

Oracle launches ALLIANCE program for software VARs

Oracle Corp., supplier of the ORACLE distributed relational DBMS and application development tools, has announced a new program for software value-added relicensors dubbed the Oracle *Alliance* program. The program offers broader markets, simpler, faster selling cycles, and shorter time-to-market for VARs who build or convert their applications to use Oracle's products.

According to Larry Harman, Oracle's Director of the VAR program, "We offer major business benefits to VARs who choose to use ORACLE with their products. Chief among these benefits is ORACLE's portability and the portability of ORACLE-based applications, allowing applications and data to be shared among different machines. Oracle also provides the link software to exchange database information among the different machines."

Broader VAR Markets

ORACLE runs on the widest array of hardware: IBM mainframes under MVS and VM, most vendors' minis under both proprietary and UNIX operating systems, and PCs under MS/DOS. Oracle also developed SQL/RT, marketed by IBM on the RT PC.

Harman states, "Only with ORACLE can an application developer produce software on one system and *inherit* a vast market of users of multiple vendors' hardware. Basically, we let our software VARs do *blindfold selling*."

"Blindfold Selling"

The company described "blindfold selling" as the ability of a VAR's salesman to walk into an end-user site blindfolded and say, "I don't know what types of hardware you're using, or how many types there are, but my applications run on all of them"

Harman points out that VARs have a tough decision to make concerning what hardware to implement on. With ORACLE, that decision needn't be made. Software VARs who establish a niche in a particular vendor's install base can take advantage of ORACLE's portability to sell in other hardware environments.

Shorter Time To Market

The company also cited the high level of productivity offered to VARs by Oracle's broad range of application tools, including a forms system, integrated spreadsheet, graphics and other tools. These yield development and maintenance efficiencies that translate into shorter time-to-market and lower costs.

And, Harman adds, "ORACLE is the most complete and mature SQL-based DBMS on the market. SQL is becoming a national standard, so developing applications with an IBM-compatible, portable DBMS makes business sense in both private-sector and public-sector markets."

Harman concludes, "Generous discounts plus support, training and co-marketing combine to make the Alliance program an outstanding opportunity for software VARs."

Oracle Corporation, founded in 1977, builds and markets the ORACLE distributed relational DBMS, 4GL and DSS tools. ORACLE was the first commercial SQL-language DBMS, and is compatible with IBM's DB2 and SQL/DS DBMSs.

ORACLE provides a standard software environment across a wide range of computers and operating systems, including IBM mainframes, minicomputers from DEC, DG, ATT, HP, Stratus, IBM, Apollo and many others, and IBM PCs. ORACLE runs with IBM's MVS and VM/CMS, DEC's VAX/VMS and DG's AOS/VS among others, as well as with UNIX on most systems.

All versions of ORACLE, from the mainframe to the PC implementation, are identical. ORACLE is the only relational DBMS which provides the complete portability of data and applications across a wide variety of systems. Oracle's SQL*Star architecture links dissimilar systems running ORACLE.

Oracle Corporation markets its products worldwide through 30 direct sales offices, 11 distributors and the Authorized Oracle Dealer network. In addition, ORACLE is sold by numerous hardware manufacturers, including IBM, Honeywell, Sperry, Stratus and Prime.

ORACLE®

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For additional information, contact Larry Harman, Director, VAR Marketing, Oracle Corporation, 20 Davis Drive, Belmont, CA 94002 or call 800-345-DBMS

Vendors

FROM PAGE 19

View, Calif.-based Case Technology, Inc.'s Case Vanguard CAE Design System.

Synercom, Inc. in Sugar Land, Texas, provides support of its Informap III, a high-resolution mapping software package. Houston-based Sierra Geophysics, Inc. supports its seismic modeling software.

General Electric Co.'s Calma group is making its Prism/DDM and Dimension II CAE/CAD/CAM software available on the Vaxstation 2000. Burlington, Mass.-based CIS, Inc. offers Medusa, a designing and drafting package that includes an integrated solid modeler.

Commercial applications for the Microvax 2000 include the Wellesley, Mass.-based Gately & Glew Data Services, Inc. Employee Productivity Information System and the Vancouver-based Technologies, Inc. ABC/MM line of integrated maintenance-management and inventory-control software.

For customers who require ruggedized equipment, Rugged Digital Systems, Inc. can provide R/VS410 Rugged Vaxstation 2000 and R/410 Rugged Microvax 2000 systems for battlefield applications.

Other third-party vendors providing offerings for the VAX 2000-series systems include BBN Software Products Corp. in Cambridge, Mass.; Execucom Systems Corp. in Austin, Texas; Touchstone Software Corp. in Seal Beach, Calif.; and Georgia Tech Research Corp./GTICES Systems Laboratory ; located in Atlanta.

Also offering products are HOK Computer Service Corp. in St. Louis; Mitchell Management Systems, Inc. in Westboro, Mass.; Futurenet Corp. in Chatworth, Calif.; Nastec Corp. in Southfield, Mich.; Autotrol Technology Corp. in Denver; and Pritsker & Associates, Inc. in West Lafayette, Ind.

Other vendors include Boston Systems Office, Inc. in Waltham, Mass.; Conetic Systems, Inc. in San Leandro, Calif.; Signal Technology, Inc. in Goleta, Calif.; and Access Technolgy, Inc. in South Natick, Mass.

Librarian

FROM PAGE 19

much more interactive way to provide those functions to an ISPF terminal," Parente said.

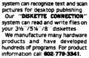
Among other things, a programmer could create a new module of code by copying part of an existing module.

ADR's Librarian's INCLUDE statement now can be utilized to include an existing module of production source code in a targeted module, according to Parente.

Librarian keeps a record of each update, so previous versions of production programs can be recreated, according to spokesmen.

Also included in Release 3.6 is a version of the Librarian Access Method, which supports IBM VSE Release 2. The access method for MVS supports a directory-read function.

With 5,939 copies installed, Librarian is one of the Princeton-based mainframe systems house's "bread-and-butter products." The current version sells for $19,000 in the DOS version. In the MVS version, it sells for $29,400.



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Data Retrieval ports TextDBMS to VAX

BY JEAN S. BOZMAN
CW STAFF

MILWAUKEE — Data Retrieval Corporation of America, which has been selling text data base management systems to mainframe users since the 1960s, is offering a Digital Equipment Corp. VAX version of its TextDBMS system.

It took about six months to port TextDBMS to the VAX, Data Retrieval President Bert Sheingate said. TextDBMS was itself an enhanced version of Alter, which had been the company's primary product until 1986. The company was acquired in 1985 by West Publishing, Inc.

Alter and TextDBMS are used at more than 100 large user sites including insurance companies, state governments and federal agencies. The Data Retrieval systems allow users to create, manage and update text files through a data base management system that handles text as well as data. The text files are maintained on a central file server, often an IBM 3380 disk drive.

Typical user sites have hundreds of end users updating legislation, regulations or insurance company policies. Until now, though, TextDBMS could only run under CICS on IBM mainframes. The initial IBM versions will continue to be offered and enhanced, Sheingate said.

The DEC version of TextDBMS will bring library-services functionality to a new class of departmental users, Sheingate said. "Our goal is to have TextDBMS operate the same way on the DEC platform, as it does in the IBM environment," he said last week. The intent is to have TextDBMS run on one of the VAX computers in a Vaxcluster, giving all the users in a DEC network access to a central text data base.

Will support Microvax

Initially, the DEC version of TextDBMS will run on VAX 8200s, 8500s, 8600s and high-end VAXs. Later on, the company plans to add support for the VAX-11/780 and Microvax product lines.

The package has three modules. Textsearcher allows users to research, retrieve or update information; Textbuilder is an application language that creates the text files stored under the DBMS; and Textcomposer allows users to select the final form of output for finished text, including electronic distribution.

Customer shipments are scheduled to begin in the third quarter, the company said.

MCBA unveils VAX line of applications

GLENDALE, Calif. — MCBA, Inc., a 12-year-old minicomputer software vendor, has announced an 18-module line of of accounting, manufacturing and distribution applications that work together or individually on Digital Equipment Corp.'s VAX line of minicomputers.

Written in Cobol, the modules are now available at prices that range from $3,000 to $6,000 per module, MCBA President Stina Hans said.

Software in the three functional areas is designed to share files and a set of special functions, including search capabilities that allow referenced records to be retrieved.

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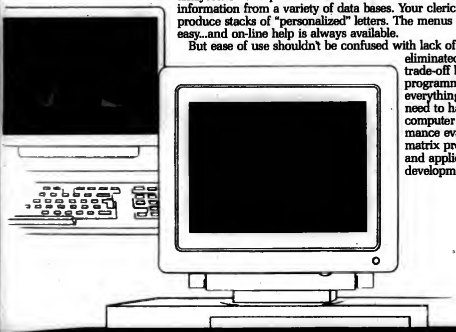

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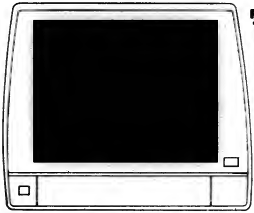

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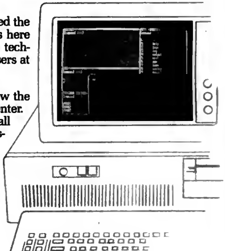
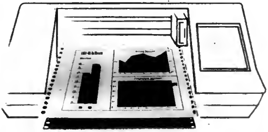


The SAS System runs on IBM 370/30xx/43xx and compatible machines under OS, TSO, CMS, DOS/VSE, SSX, and ICCF; on Digital Equipment Corp. VAX™ 8600 and 11/7xx series under VMS™; on Prime Computer, Inc. Prime 50 series under PRIMOS®; on Data General Corp. ECLIPSE® MV series under AOS/VS; on IBM AT/370 and XT/370 under VM/PC; and on IBM PC AT and PC XT under PC DOS. Not all products are available for all operating systems.



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27511-8000, USA
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NEW PRODUCTS

Systems software

Tandem Computers, Inc. has announced **Netbatch** and **Netbatch Plus**, batch processing software for its Nonstop systems.

Netbatch is a scheduler for batch jobs said to allow users to automate batch-job execution on a Tandem system or across a network of Tandem systems. Batch jobs can be scheduled according to job priority, system load and network configuration. Netbatch also keeps a log of batch activity.

Netbatch Plus bundles Netbatch software with DB Batch FE, a batch front-end product from MIS Information Systems, Inc. Together, they accommodate complex batch environments and provide a full-screen user interface.

Netbatch costs from $1,350 to $2,700 for an initial license with a monthly fee of $100 to $200. Netbatch Plus costs from $1,850 to $3,700 with s monthly fee of $270 to $340.

Tandem Computers, 19333 Vallco Pkwy., Cupertino, Calif. 95014.

Applications packages

Precision Visuals, Inc. has ported its **DI-3000 XPM, GK-2000** and **Picsure Plus System** graphics software packages to Digital Equipment Corp.'s Vaxstation II/GPX graphics workstations running under DEC's VMS.

The software is said to take advantage of the window and display-list functionality of DEC's UIS interface, including window resizing under control of an applications program and two-dimensional image transformations. Other hardware functions supported include 14 fonts, polygon fill, 10 line styles and 256 simultaneous colors.

Pricing is $9,000 for DI-3000 XPM; $3,500 for GK-2000; and $4,600 to $6,600 for the Picsure Plus System.

Precision Visuals, 6260 Lookout Road, Boulder, Colo. 80301.

Maxway Data Corp. has announced **Version 3.0** of its **Book Publishing Order Fulfillment** software.

Version 3.0 is said to allow name and address updates from the order-entry screen.

The order-entry screen also allows scrolling of inventory items by ISBN number or the first four chracters of the inventory item.

According to the vendor, the Maxway package includes business applications such as Invoicing, Inventory Control, Sales Analysis, Open Item Accounts Receivable, Automatic Calculation of United Parcel Service freight charges and royalty applications.

Version 3.0 runs on the IBM System/34, 36 and 38 computers. It is priced at $8,000.

Maxway Data, 225 W. 34th St., New York, N.Y. 10001.

Dynasoft Corp. has announced the **Dynasoft Integrated Software System** for IBM mainframe computers using IBM's MVS/TSO and VM/CMS.

The integrated software package is said to link the spreadsheet, word processing, graphics and data base interface business functions.

According to the vendor, other attributes of the integrated software package include full-overlay windows that allow the user to view and manipulate data in the spreadsheet, graphics display and word processing document simultaneously.

The Dynasoft package also includes pop-up menus that are said to prompt the user.

The Dynasoft Integrated Software System is priced from $17,500 to $49,000, depending on the size of the computer.

Dynasoft, Suite 500, 6300 River Road, Rosemont, Ill. 60018.

Utilities

Natural Language, Inc. has ported its **NLI Datatalker** natural-language interface to Digital Equipment Corp. VAX systems.

The NLI Datatalker is an English-language interface that enables untrained users to access relational data bases in plain English. The system incorporates knowledge representation and deductive reasoning and processes English independent of any application.

Based on proprietary technology, the Datatalker consists of an English Language Parser, a Semantic Interface, a Semantic/Pragmatics Interpreter, a Conversation Monitor, an English Language Generator, a Deductive System and a Data Base Interface.

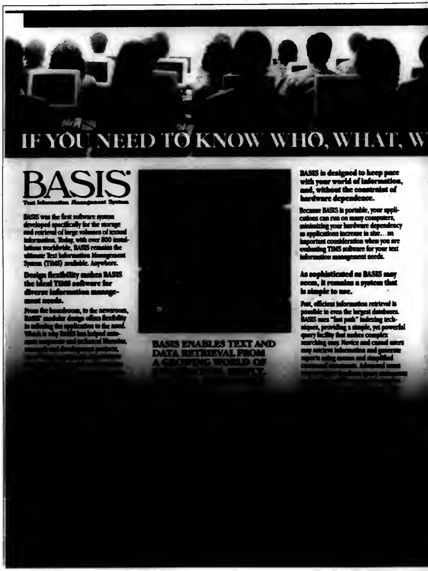
The NLI Datatalker is priced from $10,000.

Natural Language, 1786 Fifth St., Berkeley, Calif. 94710.

Walker Richer & Quinn, Inc. has announced **Release 2.5** of its **Reflection 2** VT220 terminal-emulation communications software program.

Release 2.5 adds Tektronix, Inc. 4010 graphics emulation, keyboard remapping and 132-column-wide screens to the software package. The program also includes menu and Help screens in French, German and English.

Release 2.5 with graphics support costs $199.



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Walker Richer & Quinn, 2825 Eastlake Ave. E., Seattle, Wash. 98102.

WMZ/Novatech has announced **Menu System**, a user interface to Unix-based systems.

Menu System is said to lead the user through the computer's functions as well as to protect the system from inadvertent or malicious damage. Users have the option of using brief menus and jumping directly to any location in the system if they do not wish to go through each menu.

Menu System is available for Unix System V on Plexus, Dual and Fortune computers.

It costs $750 in single quantities.

WMZ/Novatech, Suite 1330, 1485-G Enea Court, Concord, Calif. 94520.

Precision Visuals, Inc. has announced **device drivers** for the Digital Equipment Corp. LN03 Plus and LN01S laser printers.

According to the vendor, the device drivers support both portrait and landscape image orientation and a print rate of up to eight pages per minute at a resolution of 300 dot/in.

The device drivers are said to take advantage of the printers' capabilities for hardware text, line styles and widths and unique icons.

Letter- and A4 metric-size paper can be used.

The device drivers are priced at $750, including source code and documentation.

Precision Visuals, 6260 Lookout Road, Boulder, Colo. 80301.

Software Technologies and Research, Inc. has announced **Vision/1**, a conversion service and software product said to allow an IBM IMS/DC application to run in an IBM CICS environment without change to its structure or source code.

Vision/1 is a set of IMS and message format services conversion and simulation software. The conversion process is an automated, menu-driven system, resulting in a verified IMS application system running under CICS. The application source can be maintained from either the IMS or CICS environment.

Vision/1 conversion and runtime software is priced at $20,000 plus $85 per converted module or screen.

Software Technologies and Research, 160 West St., Cromwell, Conn. 06416.

Innovative Software Solutions, Inc. has announced **Version 03.04** of **Dictionary Companions** for Hewlett-Packard Co. HP 3000 computers.

Dictionary Companions consists of two programs, DICTCPD and DICTCCD, that interface with HP's Dictionary/3000. Each program can compare source code with data dictionary definitions to verify the source code and, optionally, load definitions into the data dictionary. DICTCPD operates on Cobol program source code, and DICTCCD operates on Cobol Copylib source-code modules.

DICTCPD now catalogs all $INCLUDE files and called subprograms and subroutines. DICTCCD now catalogs all $INCLUDE files.

Dictionary Companions costs $1,695.

Innovative Software Solutions, 10705 Colton St., Fairfax, Va. 22032.

Tom Software, Inc. has announced the **Wang Control File Generator**, an application developed with the vendor's Speed II language.

The program is said to enable all Wang Laboratories, Inc. utilities to instantly access data files created within Speed II's applications. The utilities include 20/20 spreadsheet; EZquery, a data retrieval program; VS/Report, a report generator; VS/Graphics; and PACE, Wang's applications development environment.

The program automatically generates control files to identify user-selected data files from any Speed II application.

The Control File Generator is priced from $500.

Tom Software, P.O. Box 66596, 127 S.W. 156th, Seattle, Wash. 98166.

Parafax, Inc. has announced the **S/38 Buddy System** of desktop utilities for the IBM System/38.

According to the vendor, the Buddy System uses pop-up windows to provide a four-function calculator, a perpetual calendar and a build-as-you-go group job menu. The latter attribute allows up to 16 sessions to be started for each workstation sign-on.

In addition, workstation message display and a site-unique function defined during installation are supported.

The S/38 Buddy System is priced at $250.

Source code is available for an additional $250.

Parafax, 135 Central Road, New Lenox, Ill. 60451.

Development tools

Micro Focus, Ltd. has ported its **VS Cobol** to the IBM Personal Computer AT running Santa Cruz Operation's (SCO) Xenix.

The 32-bit VS Cobol compiler is said to handle programs with code and data spaces of up to the system limits per compiled module. VS Cobol supports Cobol variants such as IBM OS/VS Cobol and contains a preprocessor facility to ease the migration of applications written in Ryan-McFarland Corp. RM/Cobol to Micro Focus, Inc. Cobol.

Micro Focus's Development Tools, which include the Animator visual programming tool and Forms-2 screen painter, are also available.

VS Cobol costs $1,495; Development Tools costs $1,295, and the VS Cobol runtime system costs $395.

Micro Focus, Suite 400, 2465 E. Bayshore Road, Palo Alto, Calif. 94303.

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MICROCOMPUTING

SMALL TALK

William Zachmann

Hut, hut, hike

Okay, so it's not a business program. My wife doesn't like it much either, and she complains that it takes up too much of my spare time. But everybody's got to relax a little once in a while, and if you are tired of evaluating or using spreadsheets, data bases and terminal emulators, this package might be just for you. I must warn, however, that a site license for this program is sure to cripple the productivity of your PC users.

I'm talking about NFL Challenge from Minnetonka, Minn.-based XOR Corp., one of the most absorbing and addictively enjoyable computer games I've encountered. Priced at $99.95 with both IBM Personal Computer and Apple Computer, Inc. Macintosh versions NFL Challenge is based on a realistic simulation model driven by actual team rosters and statistics.

In NFL Challenge, the opposing sides are selected from the actual list of National Football League teams. It can be played as a two-person game or by one person against the com-

Continued on page 30

System gives demos of programs

Computerland, ISG list includes some 150 publishers

BY ALAN J. RYAN
CW STAFF

HAYWARD, Calif. — The 800-store Computerland Corp. chain has penned a deal to provide its franchisees with a computer system allowing users to view demonstrations of up to 150 publishers' programs. The system also makes copies of the software to be sold on the spot to users.

A user interested in software can use the evaluation system at the store and, through a series of self-prompting menus, can zero in on the category of his software needs.

The user cannot put the complete package through its paces with the system. But according to a Computerland spokeswoman, the system can make demonstration disks of all the packages it includes.

The agreement with Instant Software Generation, Inc. (ISG) calls for the use of ISG's Hands On Software (HOS) system and on-site manufacturing facilities by Computerland franchisees.

Franchisees who elect to install the HOS system, through a rental or purchase agreement, can offer programs ranging from word processing packages to spreadsheets, the spokeswoman said. The system reportedly consists of hardware and software and is made up of two stations, including an evaluation station and a control station.

If a user decides to purchase the software, the control station manufactures the package on-site. "Each site is its own manufacturing facility," according to Richard Lionetti, ISG president and chief executive officer. "The actual manufacturing of the software code is resident."

Duplication speed reportedly is not a problem. "We manufacture a double-sided, double-density IBM diskette in 42 seconds," Lionetti said. Disks can be printed in standard sizes.

Because each evaluation station works with three printers, users can receive an abridged hard copy of the software's documentation produced at the time of purchase and then can request the full documentation be sent to them.

The HOS waa tested at five Computerland franchises starting last July and running through November.

Andy Anderson, who owns four Computerland franchises in Orange County, Calif., said one of his stores was a beta-test site for the HOS. During the test, about 175 software titles existed on the system, but Anderson said he expects that number to jump to 1,500 to 1,800 titles once the paid contract goes into effect. During the test, sales were mixed between corporate purchases and home-use packages, he added.

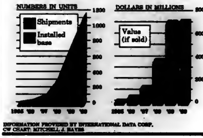
Although ISG boasts that some 150 publishers already

Continued on page 34

Data View

U.S. office image scanners

Dollar value of shipments and installed base



INFORMATION PROVIDED BY INTERNATIONAL DATA CORP.
CW CHART: MITCHELL J. HAYES

Package simplifies Excel

BY DAVID BRIGHT
CW STAFF

CUPERTINO, Calif. — Macropac International has announced a collection of macros that simplifies and adds features to Microsoft Corp.'s Excel integrated spreadsheet program for the Apple Computer, Inc. Macintosh. The package, called 101 Macros for Excel, is similar to the company's IBM Personal Computer-based program, 101 Macros, for Lotus Development Corp.'s 1-2-3 and Symphony.

A macro is a shorthand method of carrying out a sequence of commands. In addition to saving keystrokes, the new package will be an important teaching tool for novice and experienced Excel users, claimed E. Michael Lunsford, president of Macropac International. With the package, users can access the included macros as well as create their own. The manual has a tutorial

Continued on page 34

Inside

- **Orion Instruments announces microprocessor toolbox. Page 37.**
- **STB introduces a Hercules-compatible monochrome graphics adapter card. Page 38.**

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[illegible]
TRBA

Hut, hut, hike

CONTINUED FROM PAGE 29

puter. It can be used to simulate entire games with the computer playing itself.

After the two teams have been selected, both coaches have the option to view the opponent's roster and make any changes they may desire to their own. Once both coaches are ready to play, the coin is tossed and the winner chooses to kick or receive, just like in an NFL game.

Once the ball is in play after the kickoff, both coaches choose their plays. In the case of an IBM PC, one coach uses the numeric keypad to the right and the other uses the function keys on the left of the keyboard. Each can conceal his moves from the other coach with his free hand.

> Completing a pass on third and long yardage or recovering an opponent's fumble can be almost as thrilling as watching a live game.

Choice of plays is made from offensive and defensive playlists. Play selection is made in two steps. First, a set group of plays is selected. Next, a play is selected from the play group. This is not shown on the screen until both offense and defense have chosen their plays.

So while it is usually possible to see which play group an opponent has selected, the actual play cannot be known until one's choice has been made. Play selections are made while a real-time 30-second play clock is running. Failure to make a selection within the 30-second time allowed results in a five-yard penalty for delay of the game.

In addition, each player may retract the play selection and make another, as long as the opponent has not yet made a final selection. So in play between two live opponents, a realistic equivalent of shifting formations is possible.

Once both the offensive and defensive coach have selected their plays, the play is shown on a graphics monitor in a typical X and O real-time chalkboard motion. This is followed by a slow-motion instant replay, unless the replay option is disabled by the players.

Until you actually play NFL Challenge, you may not appreciate how easy it is to get excited about watching the progress of your Xs or Os across the screen. Believe me, completing a pass on third and long yardage or recovering an opponent's fumble can be almost as thrilling as watching a live game.

Concise, illustrated offensive and defensive playbooks come with NFL Challenge. These can be used as a convenient reference by the coaches as they select their plays. In addition, the game comes with a special NFL Challenge edition of the Official Illustrated NFL Playbook. This is a superb booklet with everything from the basics of NFL football to an excellent treatment of how NFL teams develop and execute a game plan.

Even someone who knows nothing about football could easily become as knowledgeable as most long-time fans by studying and playing NFL Challenge. At the same time, experienced fans, and perhaps even players, will find that they are able to make use of their knowledge of the game when playing NFL Challenge.

An example of the latter, in addition to play selection, may be found in the ability to make substitutions at any time through the coaching menu. Each player on each of the 28 NFL teams is represented in the team data bases.

Each player is identified by number, height, weight and speed. Skill ratings are included for running skill or defensive skill against runners, receiving skill or defensive skill against receivers, blocking skill or defensive skill against blockers and passing and kicking skills.

The game can be played leaving the roster in the hands of the computer. Knowledgeable coaches familiar with their teams, however, can make substitutions to maximize their chances against a particular opponent.

Penalties, injuries, interceptions and fumbles are generated randomly by the computer at probabilities reflecting team statistics and NFL experience. The game is effectively played in real-time with time-outs taken via the coaching menu.

Yet another coaching option is to enter two-minute mode. This allows a trailing offensive team running out of time to make special efforts to get out of bounds or otherwise stop the clock on plays. The quarterback will also take more chances passing, in an effort for longer yardage but at greater risk of interception.

Other features include the ability to save games at any point and restore them later, to freeze action temporarily and to undo a previous play. Plays can also be sped up in two different ways.

When either team scores, NFL Challenge treats you to a scoreboard display. Field goal attempts are also shown graphically. An optional halftime extravaganza program is available for the IBM version for $14.95.

NFL Challenge is so much fun that, sitting here in frozen New England, I couldn't resist telling you about it. Maybe it can cheer you up, too, while we wait for spring.

Zachmann is vice-president of research at International Data Corp.

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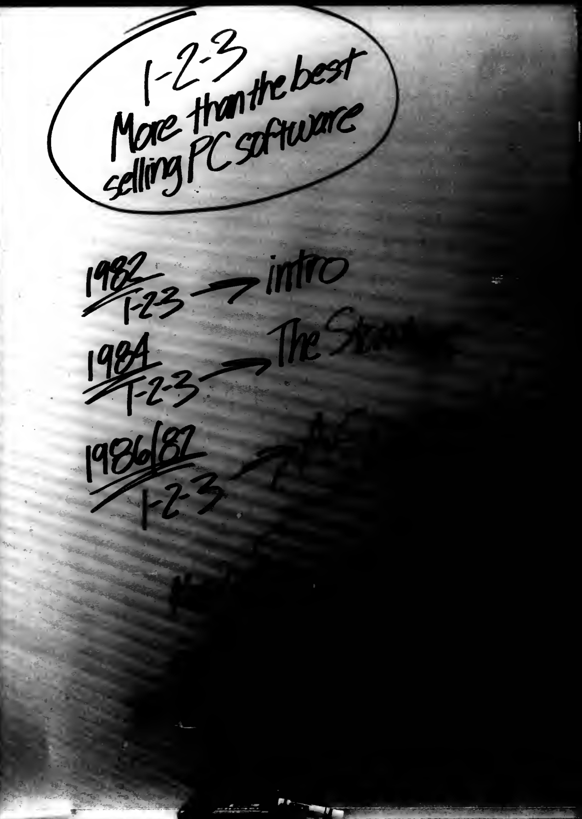
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More than the best
selling PC software
1982
1-2-3 → intro
1984
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1986/87
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1-2-3 always was a smart investment.

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System

FROM PAGE 29

have programs on the system, noticeably absent from that list are Lotus Development Corp., Ashton-Tate, Microsoft Corp. and Wordperfect Corp.

"We're in discussions with all publishers," Lionetti said. "Clearly, Computerland will be taking an aggressive approach with us in showing the benefits and features [of the HOS system to the top publishers]."

While some publishers may be concerned that they will not receive royalties for packages sold on the system, their fears are unjustified, Lionetti said.

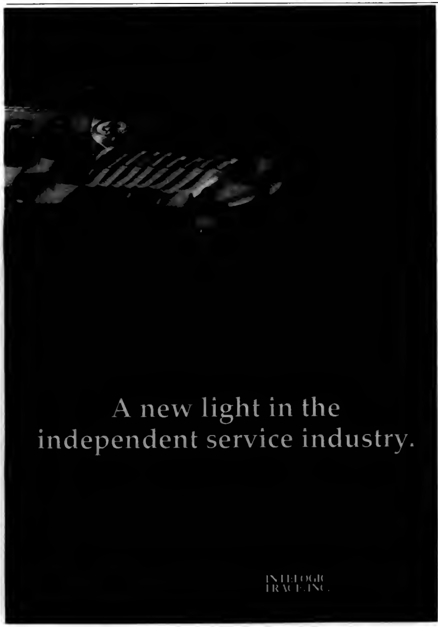
As security measures, a double-password entry system for authorization is needed, the equipment automatically shuts down if someone tampers with it and the programs are manufactured on serialized disks.

Royalties ensured

An audit trail monitoring the royalty accounting is processed through a Big Eight accounting firm, which is responsible for making sure publishers receive royalty payments for software that is replicated.

Currently, Computerland is the sole company negotiating for the systems, but it does not have an exclusive contract with ISG.

"There is an enormous potential for us to install our system in a variety of locations," including government agencies, schools and universities, corporations and other computer dealer locations, according to Lionetti.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Package

FROM PAGE 29

chapter on macro creation.

The $69.95 package includes macros that automate data base creation and maintenance, double-space work sheets, hide notes next to data cells, generate tables, save backup copies of work sheets and organize a screen full of windows.

One of the macros automatically gives subtotals of identical types of items listed in a data base.

Cursor control macros contained in the program include instructions for jumping to the top of the screen, jumping to often-accessed locations and returning to the point of origin.

Lunsford devised the idea for the macro programs when he found himself constantly repeating identical series of keystrokes.

Lunsford noted that one drawback with Lotus's competing Jazz integrated spreadsheet program for the Macintosh has been its inability to accept macros.

However, Lotus is expected to remedy that problem with an enhanced version of the program due next month, according to sources. Macropac may be offering a collection of macros for the Jazz version, Lunsford said.

LAN version of Supercalc4 out

SAN JOSE, Calif. — Computer Associates International, Inc. will this week announce a local-area network version of its Supercalc4 integrated spreadsheet.

The package, which contains the Network Activator feature, runs on Novell, Inc.'s Advanced Netware, IBM's PC Network and Token-Ring and 3Com's 3+. Supercalc4 provides file locking and spool network printing, which allows the user to output to a variety of devices on the network.

When used in conjunction with a copy of the latest version of Supercalc, the $395 Lanpak allows access for up to three users for the price of an individual package.

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NEW PRODUCTS

Systems

Orion Instruments, Inc. has announced the **Optilab Microprocessor Development Toolbox.**

The toolbox is said to be a fully integrated personal computer-based system that incorporates software program performance analysis and optimization. Functions offer the capabilities to create, assemble, analyze, modify, test and optimize software in a single system.

Other features include a line-by-line assembler, a 48-channel analyzer for monitoring bus-state activity and a full-feature universal 8/16 bit in circuit emulator.

Optilab is priced at $5,980 with 32K bytes of emulation memory.

Orion Instruments, 702 Marshall St., Redwood City, Calif. 94063.

The H. W. Wilson Co. has announced the **Wilsonline Workstation**, a package of computer and compact disk (CD) equipment for use in libraries and information centers.

The Workstation consists of an IBM Personal Computer XT with 640K bytes of memory, a color monitor, an IBM Proprinter, a modem, a CD player and peripheral equipment. It was designed to accommodate the on-line CD-read-only memory retrieval services that make up the vendor's Wilsonline Information System. The components of the workstations are also suitable for a variety of other library uses, the vendor said.

The Workstation is priced at $4,995.

H. W. Wilson, 950 University Ave., Bronx, N.Y. 10452.

Epson America, Inc. has announced the **Equity III+**, a 16-bit personal computer.

The Equity III+ is said to be hardware- and software-compatible with the IBM Personal Computer AT. It comes with an Intel Corp. 80286 microprocessor capable of running at switch-selectable rates of 6, 8 or 10 MHz. It features nine full-size option cards and comes with a built-in parallel and serial port.

The product comes with Microsoft Corp.'s MS-DOS, GW-Basic and system diagnostics.

The Equity III+ is priced from $2,695. When equipped with a 40M-byte Winchester disk drive, it costs $3,895.

Epson America, 2780 Lomita Blvd., Torrance, Calif. 90505.

Applications packages

Lexisoft, Inc. has announced a **Postscript version** of its **Spellbinder Desktop Publisher**, the page-composition and word processing program for IBM Personal Computers and compatibles with Hewlett-Packard Co. Laserjet-compatible printers.

Postscript is a page-description language said to allow laser printers to generate and modify text and graphics.

The software is said to be able to write Postscript code through in-line commands and send those instructions to the printer.

Postscript allows users to shadow letters, print text around corners and place patterns inside text characters.

Spellbinder Desktop Publisher is priced at $695.

Lexisoft, Davis, Calif. 95616.

State of the Art, Inc. has ported its **Master Accounting Series 90** software to personal computers on Novell, Inc.'a Advanced Netware local-area networks.

The software includes General Ledger, Accounts Payable, Accounts Receivable, Payroll, Inventory Management, Sales Order Processing and Purchase Order Processing as well as Library Master modules.

According to the vendor, the software takes advantage of Advanced Netware's file and record locking capabilities, allowing multiple users to access a common set of accounting data with complete data integrity. Also provided is a print-spooler capability.

Each application module is priced at $795.

State of the Art, 3191-C Airport Loop, Costa Mesa, Calif. 92626.

Softcorp has released **Pro Path Plus**, a critical-path method project-management system for IBM Personal Computers and compatibles.

The software is said to feature the ability to read and write Lotus Development Corp. 1-2-3 and Ashton-Tate Dbase III files.

It also features statistical planning functions remitting risk analysis and resource management with leveling.

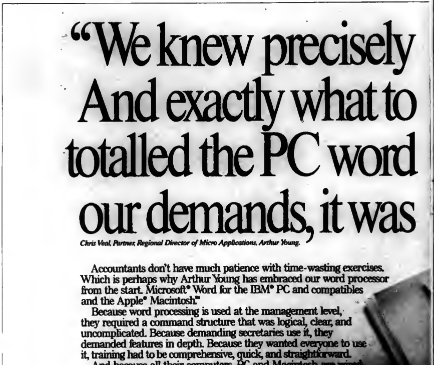
Pro Path Plus provides several interactive views of a project.. Graphics dot matrix printers may rotate reports and charts 90 degrees. The full IBM character set is supported.

Pro Path Plus is priced at $495.

Softcorp, Suite 244, 2340 State Road, Clearwater, Fla. 33575.

Opus Systems has ported a full implementation of **Kyoto Common LISP** (KCL) to its Unix platform.

The Opus port of KCL is said to contain Common LISP functions, macros and special forms. It has both a compiler and an interpreter. It has a kernel written in C and compiles in C, so it is portable and ma-



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totalled the PC word
our demands, it was

Chris Veal, Partner, Regional Director of Micro Applications, Arthur Young.

Accountants don't have much patience with time-wasting exercises. Which is perhaps why Arthur Young has embraced our word processor from the start. Microsoft® Word for the IBM® PC and compatibles and the Apple® Macintosh.™

Because word processing is used at the management level, they required a command structure that was logical, clear, and uncomplicated. Because demanding secretaries use it, they demanded features in depth. Because they wanted everyone to use it, training had to be comprehensive, quick, and straightforward.

And because all their computers, PC and Macintosh, are wired together, they needed software that was optimized for [illegible] could easily share and automatically convert files [illegible] computer. And that would support IBM's DCA [illegible] formatted files with minis and mainframes.

Then there were a few more givens. It had to [illegible] get on the printed page.

Of course, it had to lay down vast columns [illegible] subtract, multiply, or divide.

And it had to get its [illegible]

When [illegible]

Microsoft [illegible]

chine-independent, the vendor said.

Any Common LISP code has the ability to be cross-compiled. In addition, the C code generated can be used on any of the systems running KCL, according to the vendor.

Opus Systems' port of KCL is priced from $600.

Opus Systems, Building 400, 20863 Stevens Creek Blvd., Cupertino, Calif. 95014.

Software utilities

S. K. Data, Inc. has announced **Golden Retriever**, a document- and text-retrieval program.

The program uses a text-pattern recognition technique to search files for any phrase up to four words long. It locates exact matches as well as similar text patterns. Golden Retriever then informs the user which file contains the phrase, highlights the phrase and extracts a portion of the file into a proof file for further processing. Other features include wild-card character and subdirectory options.

Golden Retriever runs on IBM Personal Computers. It costs $99 plus $5 for shipping.

S. K. Data, P.O. Box 413, Burlington, Mass. 01803.

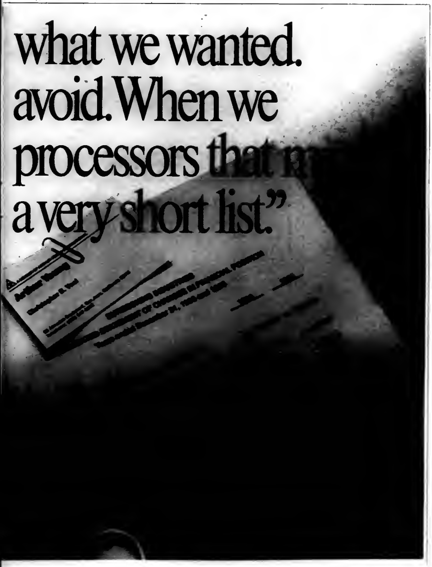
Blaise Computing, Inc. has announced **Light Tools**, a C support library designed for the Datalight C compiler on IBM Personal Computers.

Light Tools features fast video I/O using BIOS services or direct access to video memory, full-function windows that can be stacked and removed and can accept user input and IBM Enhanced Graphics Adapter support, including 43-line mode, according to the vendor.

The product is also said to feature interrupt-service support for resident applications and general-utility functions. These functions include keyboard input, sound, disk-volume label support, management of memory outside a Datalight C program, BIOS time-of-day and dot and line graphics.

Light Tools is priced at $99.95 including reference manual, source code and sample programs.

Blaise Computing, Suite 316, 2560 Ninth St., Berkeley, Calif. 94710.


what we wanted.
avoid. When we
processors that
a very short list."

Software enhancements

Spectrum Software has announced **Version 1.0** of its **Micro-Logic II** interactive design and analysis system for digital electronics.

The system includes an integrated mouse-driven schematic editor and shape- and component-library editors. Micro-Logic II is available for the IBM Personal Computer and compatibles.

Micro-Logic II costs $895.

Spectrum Software, 1021 S. Wolfe Road, Sunnyvale, Calif. 94086.

Rational Systems, Inc. has announced **Instant-C 2.2**, an upgraded version of its C-language incremental compiler.

Version 2.2 is said to offer support for Micrososft Corp. Microsoft 4.0 and Lattice, Inc. Lattice 3.1 object files and libraries.

Other features include the ability to edit an entire memory file with the EDM command, a pop-up window enabling users to see the declarations of globals defined in other files and an updated manual.

Instant-C 2.2 incorporates a full-screen editor, compiler and interpreter, source-level debugger, source code formatted, object-code linker, source-code checker and a dynamic runtime checker. It costs $495.

Rational Systems, P.O. Box 480, Natick, Mass. 01760.

Secad has announced **Autolog 3.0**, an upgrade of its project drawing manager for use with Autodesk, Inc.'s Autocad versions 2.1 and higher.

The software is said to organize drawings in a data base by either project or library on an IBM Personal Computer or compatible. Data files are Ashton-Tate Dbase III-compatible.

Features include passwording, administrator-control options, unlimited Project, Library and Drawing note sizes and a built-in note editor.

Autolog is priced at $295.

Secad, 4707 S.W. 72nd. Ave., Miami, Fla. 33155.

Carterfone Communications Corp. has introduced **PC Reach 3.0**.

Version 3.0 includes an applications manager designed to allow users access to the operating system and various applications through a menu-oriented user interface. Additionally, PC Reach features a text editor and support for both the X and Y Modem protocols capable of driving modems to a speed of 19.2K bit/sec.

PC Reach runs on IBM Personal Computers and compatibles. It is priced at $199.

Carterfone Communications, West Tower, 1341 W. Mockingbird Lane, Dallas, Texas 75247.

Software Publishing Corp. has announced **Harvard Total Project Manager II** (HTPM II), a personal computer-based project management system that is said to allow users to plan projects on-screen.

In addition, the program is said to permit users to choose from four formats in which to plan projects: Work Breakdown Structure, PERT chart, Gantt chart or Task List format.

Other features include automatic resource leveling and resource tracking

Continued on page 38

Continued from page 37

across multiple projects and the ability to replicate real-world planning and resource situations using man-hour and overtime calculations and lag relationships, according to the vendor.

HTPM II is priced at $595.

Software Publishing, P.O. Box 7210, 1901 Landings Drive, Mountain View, Calif. 94039.

Data Storage

Xebec Corp. has announced the **Owl III Model 40** and the **Owl III Model 80D** 5¼-in. hard disk drives.

-The half-height Model 40 is said to offer a formatted capacity of 40M bytes. The full-height Model 80D offers 80M bytes of formatted capacity.

Both drives use the small computer systems interface standard and are said to comply with American National Standards Institute standards.

The two hard drives were designed for multiuser and multitasking applications. They incorporate controller logic and drive electronics on a single printed-circuit board.

The Owl III Model 40 is priced at $750. The Owl III Model 80D is priced at $1,295.

Xebec, 3579 Highway 50 E., Carson City, Nev. 89701.

Printers/Plotters/ Peripherals

Ampex Corp. has announced a price reduction on its **Ampex 232** personal computer-compatible video display terminal.

According to the vendor, the Ampex 232 can be configured to function in either single IBM Personal Computer AT or multiuser environments. When used with a modem and compatible host software, it can also act as a remote terminal. It offers the PC AT-style keyboard and emulates IBM PC scan codes, screen display and video attributes. It features a 25 line by 80- or 132-col display.

The Ampex 232 is priced at $499.

Ampex, 401 Broadway, Redwood City, Calif. 94063.

Business Systems International, Inc. has introduced its IBM Personal Computer-based **Lasersoft Printing Systems** for laser printers.

The Lasersoft Printing Systems are said to automate the development and maintenance of electronic forms and reports. They operate in a single- or multiuser environment, allowing combinations of mainframes, minicomputers and PCs.

Lasersoft Printing System I includes a laser printer; software for printer preparation, font management, forms design, form completion and data entry; five downloadable fonts; one company logo, one signature and one page form. It costs $5,495.

Lasersoft Printing System II includes the above as well as increased print speed from eight to 15 pages per minute. It costs $6,995.

Business Systems International, 20942 Osborne St., Canoga Park, Calif. 91304.

Board-level devices

Jadine Research, Inc. has announced the **286 GTI**, a 10-MHz, half-size accelerator card for IBM Personal Computers and compatibles.

The 286 GTI is said to support all versions of DOS. It requires no software patch and is compatible with Lotus/Intel/Microsoft Expanded Memory Specification boards.

The board includes 8K bytes of zero-wait state, 16-bit, data path cache memory with 45 nsec memory speed. There is an optional Intel Corp. 80287 math coprocessor that operates in both 5- and 8-MHz modes.

The 286 GTI accelerator card is priced at $399.

Jadine Research, Suite 334, 1647 Willow Pass Road, Concord, Calif. 94520.

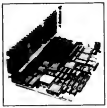
Zeos International has announced its **Zeos 386/M**, which is an IBM Personal Computer AT-compatible motherboard.

The motherboard is said to upgrade IBM Personal Computers to full Intel Corp. 80386-based systems.

The 386/M features a 16-bit, AT-compatible bus for peripherals and a 32-bit, 16-MHz, zero-wait state bus for memory, the vendor said.

There are provisions for up to 16M bytes of dynamic random-access memory, according to the vendor.

The board is also said to have the ability to support IBM Enhanced Graphics Adapter capability in addition to IBM Professional Graphics Adapter displays.



Zeos's *386/M motherboard*

The Zeos 386/M is priced at $1,995. This price applies to the version without memory.

Zeos International, Suite 1000, 530 5th Ave. N.W., St. Paul, Minn. 55112.

STB Systems, Inc. has announced the **H Card**, a Hercules Computer Technology, Inc.-compatible monochrome graphics adapter card.

The H Card is said to offer 720- by 348-pixel monochrome graphics.

The card is compatible with such software packages as Lotus Development Corp.'s 1-2-3, according to the vendor.

It is said to allow 80-col by 25-line text display and to provide video attributes of highlight, blink, underline, reverse and blank.

The H Card works in IBM Personal Computers and compatibles.

It comes with an IBM-compatible parallel port and 64K bytes of standard display memory, the vendor said.

The H card is priced at $239.

STB Systems, P.O. Box 850957, Richardson, Texas 75085.

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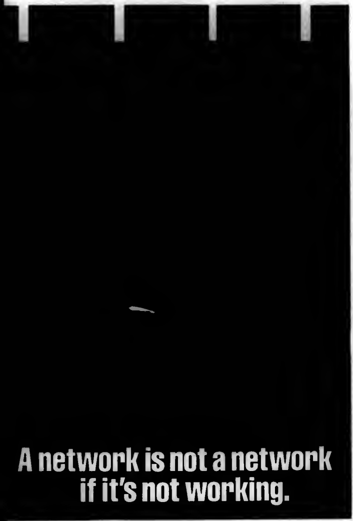

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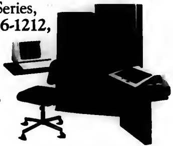

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NETWORKING

DATA STREAM

Walter Ulrich

Unleashing Baby Bells

The U.S. Department of Justice has come full circle.

In 1974, the department vigorously pursued antitrust legislation against AT&T. In 1982, AT&T agreed to divest itself of local telephone services and to accept prohibitions aimed at enhancing competition.

In 1984, the old AT&T was broken up in the largest industrial restructuring since World War II. And now, the Justice Department recommends unleashing the regional Bell holding companies to pursue a variety of new markets, including customer-premise equipment, information services and interexchange transmission services — subject only to the Federal Communications Commission.

The nonregulated communication service companies, many information suppliers and most industry trade associations can be expected to strongly disagree with the Justice Department. They see the consumers — themselves — not as beneficiaries but as victims of monop-

Continued on page 44

Network firms join product lines

BY ELISABETH HORWITT
CW STAFF

WASHINGTON, D.C. — Doelz Networks, Inc. and Network Equipment Technologies, Inc. (NET) recently announced an exclusive joint marketing and product development agreement aimed at integrating their network equipment into a comprehensive, centrally managed voice/data communications system, the companies said. Both firms also announced additions to their product lines.

Under the terms of the agreement, which was unveiled at the Communication Networks Conference and Exposition (Comnet), Doelz and NET will jointly market their product lines and provide a single point of contact for service and support, according to Tony Russo, NET's vice-president of marketing.

Together, the two companies hope to provide a "full network solution, with NET's T1 switches providing bulk transmission bandwidth between network nodes and Doelz's concentrators and switches supplying the interfaces that distribute data to user devices," noted Frank Connors, Doelz president.

NET offers the Integrated Digital Network Exchange (IDNX) line of intelligent T1 switches, which target high-end, multinode T1 networking installations. Doelz sells network concentrators, switches and multiplexers that incorporate a proprietary fast-packet data technology and can support a variety of transmission modes including virtual Systems Network Architecture circuits, according to Connors. Since NET handles voice transmissions but Doelz does not, the companies will use NET's existing links to private branch exchanges to provide local distribution of voice, Connors noted.

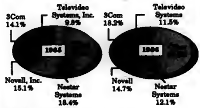
Doelz has just announced low-end versions of its Esprit One and Elite One line of network devices. The Elite One FP is a one- to four-port multipoint concentrator switch used primarily for data distribution networks. It offers the same functionality as the higher end Esprit products, including multiple protocol sup-

Continued on page 42

Data View

Personal computer local-area network server market

3Com Corp. replaces Nestar Systems, Inc. as contender with the largest installed base



INFORMATION PROVIDED BY INTERNATIONAL DATA CORP.
CW CHART

AT&T debuts primary rate for System 85

BY DONNA RAIMONDI
CW STAFF

WASHINGTON, D.C. — AT&T has announced a System 85 Advanced Networking Switch that is fully compatible with the Integrated Services Digital Network (ISDN) Primary Rate Interface standard. AT&T also unveiled several new functions for the System 85 networking private branch exchange (PBX). Both announcements were made at

Continued on page 43

Dissimilar machines are linked

BY PATRICIA KEEFE
CW STAFF

WALTHAM, Mass. — Jupiter Technology, Inc. has introduced the System 1000 family of integrated data communications computer systems, said to enable compatible and incompatible computer products to communicate freely.

Jupiter claimed the System 1000 family is a breakthrough in systems integration and the sharing of data between computer and communications systems.

The System 1000 has been installed at three major financial institutions and at a leading credit authorization company.

The System 1000 combines Softlink, a proprietary communications operating system, and modular software with a modular, multiprocessor hardware architecture. Users gain the advantage of customized software solutions coupled with programmable data communications

Continued on page 43

Inside

- Wang releases network monitoring tools. Page 42.
- Mitek adds implementations of its SNS Presentation Services for VAXs, IBM PCs. Page 45.

MAINFRAME

`printf("Hello, world\n");`

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Controller handles voice, data simultaneously

BY DONNA RAIMONDI
CW STAFF

Wang Laboratories, Inc. has announced network management software modules and an extension to its Wang Business Exchange (WBX) integrated office controller, which handles simultaneous voice and data traffic.

The software, part of Wang's Distributed Management Facility family, runs on all VS minicomputers and will be available in the third quarter. The Communications Network Services (CNS) Manager allows the network administrator to monitor, control and test Wang's CNS, which handles data routing and provides the means for communications sessions to be established, maintained and terminated. The CNS Manager, which costs from $300 to $1,200 per VS depending upon the model, runs in background mode.

Using the VS Input/Output Manager, network managers can monitor VS I/O processors, which permit data transfer between VS systems and peripherals and the devices attached to the I/O processors. Up to eight I/O processors on a VS can be monitored with the VS Input/Output Manager.

It costs from $500 to $1,000 per VS, depending on the model.

The company also released an expansion of the WBX — an enhanced version of Telenova, Inc.'s Telenova 1 private branch exchange product — to double the number of users the system supports from 80 to 160. The WBX is an integrated office controller. It can be linked with a VS computer to form the Wang Integrated Office Solution, an information processing and communications system.

The expanded WBX version will be available in late summer, and the cost per line will range from $550 for voice only to $1,200 for integrated voice and data.

Network

CONTINUED FROM PAGE 41

port, diagnostics and application priority levels. However, the Elite One FP's $3,500 to $5,200 price range makes it cost-justifiable for sites with only one terminal and application, according to Connors.

The Esprit One FP offers the same functions as the higher eod Esprit One network concentrator at approximately half the entry-level cost, according to Connors.

Supporting approximately 1,400 concurrent virtual circuits, the Esprit One FP can act as a concentration point for small networks or as a data distribution facility between Elite One Network Links and local devices.

Pricing starts at $19,750. Both the Esprit One FP and Elite One FP will be available in the second quarter of this year.

Doelz also announced the DCP 3080, a combined Customer Service Unit/Data Service Unit that interfaces user devices over a Dataphone Digital Service network. Priced at $1,000 and available immediately, the device supports transmission rates between 2.4K and 56K bit/sec. and supports both RS-232 and V.35 interfaces. It also transmits diagnostic information to Doelz's oetwork management system.

Unified system

Doelz and NET plan to merge their respective centralized network management systems into one system that will enable users to access, manipulate and store "everything from alarms to traffic, usage and error statistics" from both vendors' networking devices, Connors said.

NET's Integrated Network Command System/500 network management system, announced at Comnet, provides centralized network monitoring, security and fault management, performance measurement and configuration.

Based on a Sun Microsystems, Inc. multiwindowing, multitasking workstation, the system features topological network maps that offer views of the oetwork from an overview down to the component level.

The Integrated Network Command System/500 costs $87,500.

Release 7 software added

NET also announced at the conference Release 7 software for its IDNX product line. Available in the third quarter of this year, Release 7 enables IDNX nodes to support up to 96 IDNX T1 trunk modules and 1,024 active calls.

The software also supports several new features, including a clear 64K bit/sec. channel interface, 2-to-1 voice compression conforming to the CCITT Advanced Digital Pulse Code Modulation standard and compatibility with Extended Superframe and D4 framing protocols and Dataphone Digital Service.

A third NET introduction, the Alert Monitor software, provides an interface between NET's network management system and IBM's Netview PC. This enables users to centrally monitor alarms on IDNX corporate backbone networks through Netview, IBM's family of SNA-based network management products, NET claimed.

The Alert Monitor software features real-time access to IDNX status information.

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Note: Photos show color and resolution obtained on an IBM PC equipped with an IBM Enhanced Graphics Adapter. Monochrome display is generated when an IBM Color/Graphics Adapter or compatible graphics adapter card is used.

AT&T

CONTINUED FROM PAGE 41

the recent Communication Networks Conference and Exposition held here.

The Primary Rate Interface specifies 23 64K bit/sec. channels plus a 16K or 64K bit/sec. channel for signaling and packet switching. The interface was designed to support high-capacity digital voice, data and video transmissions between customer-premise PBXs and switches, hosts and carrier central-office switches.

"Our implementation of the Primary Rate on the System 85 is another indication that ISDN is real, and we're committed to it," said Richard Snowden, director of AT&T's Concept Development Center.

Any System 85 can be software-upgraded to support the interface while still using existing communications protocols and applications, Snowden added.

AT&T is continuing to work on implementing the ISDN Basic Rate Interface on its systems, Snowden confirmed. The Basic Rate defines two 64K bit/sec. transmission channels for connections between user voice and data workstations and switching systems.

AT&T "took a chance and lost" by choosing to develop its own version of the Basic Rate before the CCITT standard was complete, according to Snowden. As a result, the AT&T Digital Communication Protocol defines an 8K bit/sec. D channel, while ISDN defines a 16K bit/sec. D channel.

The software enhancements of the System 85 Advanced Network Switch include network management, message sharing among switches in a private network and subdivision of a single System 85 to look like multiple independent systems. Prices start at $35,000 for the features, which will be available late this year.

AT&T also introduced several System 85 enhancements, including:

- Automatic Call Distributor enhancements for greater call control and flexibility and improved administration and reporting capabilities on the System 85's 3B Call Management System. The enhancements center on call vectoring, a multistep routing of incoming calls. There will be a one-time charge of $10,000 to upgrade a 3B Call Management System to support call vectoring.
- Call Detail Recording Utility, a $6.500 3B2-based piece of applications software that increases capacity for call-record collection, storage and processing.
- Visual Maintenance and Administration Panel, a $4,000 AT&T Unix PC-based tool for controlling PBXs and networks.
- Audix-S, a voice-mail system that supports up to 1,000 light-volume users. With four ports and 10 hours of storage, the Audix-S costa approximately $42,000.
- 3B2 Messaging Server Software for designing departmental messaging systems. The software costs $15,000.

Dissimilar

CONTINUED FROM PAGE 41

hardware, the vendor said.

The System 1000 software was designed to accommodate new communications standards and protocols as they are developed. This means that it eliminates the need to purchase new communications equipment when corporate needs change, the vendor claimed.

Acts as user interface

The Softlink program controls all communications applications and protocols and acts as a user interface to control the System 1000.

Softlink also breaks the communications processing systems into discrete functions implemented in software modules called Softblocks. Each Softblock supports a different communications function or protocol, such as IBM'a Systems Network Architecture, IBM 3270 terminal emulation or X.25.

Each Softblock supports a different communications function or protocol, such as IBM's Systems Network Architecture, IBM 3270 terminal emulation or X.25.

Softlink connects Softblocks via dynamic data paths called Softwires, which transfer data from point to point and link Softblock functions. The resulting communications processing capability represents a new way to link computers in an environment that is not vendor- or protocol-specific, Jupiter said.

The System 1000 hardware allows a large number of communications processing pathways to be created and utilized simultaneously, the vendor said.

The Motorola, Inc. 68000-based Unix-compatible host processor controls the configuration of Softblocks and Softwires and performs system administration and network management.

The system can be expanded to incorporate up to 14 MC68000 family processor modules. The System 1000 is available in a variety of configurations, supporting from four lines on the Model 3 up to 624 lines on the Model 14.

Exact system prices are dependent on the configuration and processing functions included.

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Banyan serves up support for David LAN

WESTBORO, Mass. — Banyan Systems, Inc. has announced support for an integrated voice Ethernet local-area network (LAN), the David Information Manager from David Systems, Inc. in Sunnyvale, Calif.

In addition, Banyan added support for both Natick, Mass.-based Proteon, Inc.'s Pronet-4 token-ring network and Santa Clara, Calif.-based 3Com Corp.'s Etherlink + adapter.

Etherlink + is a high-performance, intelligent Ethernet adapter that runs at 10M bit/sec.

In addition, Banyan introduced an uninterruptible power supply for its Vines/286 product.

PCs part of the network

Support for David Systems' integrated voice LAN allows personal computers connected to that LAN to become part of a Banyan virtual network.

In a David Ethernet, data is transferred at high speeds over in-place, single twisted-pair telephone wiring.

Banyan's support of the David LAN enables personal computers to use the existing wiring to share files, services and peripherals attached to a Banyan server on a network.

Support for Pronet-4 covers Pronet model numbers P1340 — a 16-bit IBM Personal Computer AT bus adapter — and P1344, an 8-bit IBM PC bus adapter.

Banyan already supports Pronet-10 and provides a bridge between these two otherwise incompatible networks.

In addition, PC ATs or true compatibles running Vines/286 software oow have the same uninterruptible power supply capabilities available for other Banyan servers.

Certified power supply

Banyan has certified the American Power Conversion's uninterruptible power supply, Model UPS-121, for use with Vines/286 software.

The uninterruptible power supply connects to the PC AT through a control cable at the parallel port.

Available directly from Banyan, the UPS costs $850.

> Banyan's support of the David LAN enables PCs to use the existing wiring to share files, services and peripherals attached to a Banyan server on a network.

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Unleashing

FROM PAGE 41

oly power being exercised in competitive markets. They too have rational and persuasive arguments.

Three-pronged argument

One of their foremost objections is that the regional Bell holding companies will use revenue from their local-exchange monopolies and other protected businesses to subsidize activities in the competitive arena. Another is that the holding companies will use their control of the local-exchange facility to the detriment of competitors. A third potential hazard is that the regional Bell holding companies' purchasing power, partially due to the purchasing clout of these companies' regulated telephone monopolies, will give them significant procurement advantages. Equipment manufacturers fear that once the holding companies are allowed to make their own equipment, they will stop utilizing their present suppliers.

On the other side of the fence, the Justice Department, the FCC and the holding companies make a strong and reasoned case for deregulation. The current regulatory and judicial processes are redundant and inefficient, they claim. Foreign communications suppliers are becoming more successful in the domestic market, and divested Bell company participation would improve the trade balance and offer other economic benefits.

Supporters of the Justice Department's proposal further point out that consumers are being cheated out of products that the regional Bell holding companies, with their tremendous technological resources, could supply in a variety of markets; the companies' entry into these markets would also encourage competition.

In defense of its proposal, the Justice Department has suggested that "many information services are closely related to local telephone services and can at times be provided most efficiently by local telephone companies." It has claimed that Computer Inquiry III rules will ensure "quality of access" and fair competition in the marketplace.

Facing complex reality

How can one predict who will prove right in the long run: the Justice Department or the regional Bell holding companies' nervous customers and competitors? In an ideal world, the Justice Department's recommendations would work as intended. Unfortunately, this is a far from ideal world, and the issues are complex. The history of communications regulations is a history marked by reasonable theories that proved imperfect in practice; no wonder these latest recommendations are being criticized.

Even if Computer Inquiry III regulations and FCC control prove technically effective, it may be that the perception of the regional Bell holding companies' monopoly strength will reduce competition by discouraging new market entrants and make it harder for new ventures to raise capital.

Existing competitors may reduce the size of their investments or reallocate their resources to other markets so that the increased technological innovation coming from the holding companies may be offset by the stifling of innovation from other vendors. As a result, consumers may end up paying higher prices because of decreased competition.

One man will decide whether the benefits of unleashing the regional Bell holding companies are worth the risks. U.S. District Judge Harold Greene's decision will determine the structure of the communications industry for years to come. He will be accepting comments and responses for only a few months, so now is the time to exercise your franchise in the outcome of this crucial issue.

Ulrich is president of Walter Ulrich Consulting, a subsidiary of Coopers & Lybrand.

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NEW PRODUCTS

Local-area network hardware

Mitek Systems Corp. has announced **implementations** of its **SNS Presentation Services** for Digital Equipment Corp.'s VAX and Microvax computers running the VMS operating system and IBM Personal Computers using IBM PC-DOS.

Both implementations utilize Mitek's approach of distributed Systems Network Architecture (SNA) services for Transmission Control Protocol/Internet Protocol Ethernet local-area networks (LAN).

The SNA Network Server provides Ethernet LAN connectivity either directly channel-attached to an IBM mainframe environment or remotely attached, with speeds of up to 64K bit/sec.

Pricing for the SNA Network Servers ranges from $21,000 to $29,500. Pricing for the SNS Presentation Systems ranges from $750 to $4,500.

Mitek Systems, 2033 Chennault Drive, Carrollton, Texas 75006.

Tecmar, Inc. has enhanced its **QIC-60** line of cartridge tape systems with a software offering said to allow the system to be used with Novell, Inc. local-area networks.

The software is said to retain all of the QIC-60's original features including automatic reordering of fragmented files when restoring data to the hard disk, selective file backup and restore, direct read-after-write data verification and bad sector detection when restoring data to a different hard disk than was originally backed up

The network-compatible version of the QIC-60 line costs $1,695 for the half-height internal 5¼-in. cartridge tape drive for the IBM Personal Computer AT and compatibles and $2,144 for the external subsystem.

Tecmar, 6225 Cochran Road, Solon, Ohio 44139

Codex Corp. has introduced the **4320 LAN Hub**, a network interface said to allow up to eight devices to share a single access point to a baseband Ethernet network, and the **4303 Transceiver**, which attaches to the 4320 LAN Hub.

The 4320 LAN Hub allows a mix of computer-aided design and manufacturing workstations, IBM Personal Computers and terminal servers to connect to the single Ethernet transceiver. Up to eight 4320 LAN Hubs can be cascaded to support 64 ports, according to the vendor.

A switch allows users to configure the connected devices to pass through the Ethernet heartbeat test when connected to a transceiver or to generate the heartbeat when attached to a standalone local-area network The 4303 Transceiver also employs a switch that enables or disables the heartbeat test.

The 4320 LAN Hub costs $1,095. The 4303 Transceiver costs $270.

Codex, 20 Cabot Blvd., Mansfield, Mass 02048.

Local-area network software

Touchstone Software Corp. has announced **Unicall**, a data communications programming package for Unix-based computers.

Unicall is said to allow Unix computers to initiate and control data network applications involving other Unix systems, personal computers, Digital Equipment Corp. VAX/VMS computers and the Apple Computer, Inc. Macintosh. Supported applications include electronic mail, file transfers between operating systems, terminal emulation, printer sharing and connection management.

Unicall provides dial-out capabilities using asynchronous direct-connect ports and Hayes Microcomputer Products, Inc.-compatible modems.

Unicall is priced between $995 and $3,295.

Touchstone Software, 909 Electric Ave., Seal Beach, Calif. 90740.

Customer-premise equipment

Voice Control Systems has announced the **VCS1000** speaker-independent voice recognition system.
las, Texas 75244.
port an 82-word vocabulary divided into three application areas: home security, machine control and telephone function control. It is also said to respond to any speaker without having been trained to the speaker's voice.

The system does not require a separate computer system for operation.

VCS is priced from $995, including a microphone and voice response software appropriate for the particular application.

Voice Control Systems, Suite 100, 14140 Midway Road, Dallas, Texas 75244.

Links

IBM has announced that the Interactive Communication Facility Finance Subsystem of IBM's System Support Program (SSP) for the System/36 has been enhanced to include primary **communications support** for the IBM 5170 Personal Computer AT Model 849.

The connectivity enhancement is said to allow all models of the departmental processor line to communicate with IBM's 4680 Store Systems point-of-sale (POS) terminals. The 5170 PC AT Model 849 acts as a communications controller for up to 128 4680 POS terminals.

The enhanced version of Release 5 Modification Level 1 of the SSP communicates with the 5170 PC AT through IBM's Systems Network Architecture/Synchronous Data Link Control.

IBM's Interactive Communications Facility Finance Subsystem costs $1,600 for System/36 Models 5360 and 5362 and $1,500 for the System/36 Model 5364.

IBM, 44 S. Broadway, White Plains, N.Y. 10601.

Electronic mail

Interactive Network Technologies, Inc. has introduced **Intermail PC**, its IBM Personal Computer interface for the Intermail system.

Intermail is a desktop communications system that enables users to exchange electronic mail and files. The Apple Computer, Inc. Macintosh version also allows users to move object- or pixel-oriented images from one Macintosh to another.

Intermail's server-to-server communications feature enables microcomputers on both local and remote networks to communicate. Intermail also can act as a gateway enabling Macintoshes on an Appletalk network to communicate with systems that conform to the X.400 electronic-mail standard.

Intermail PC is site-licensed at $199 per server for IBM PCs and compatibles.
Mass. 02168
nologies, 20 Amy Circle, Waban, Mass. 02168

Multiplexers/ Modems

Gespac, Inc. has announced the **Gesmod-1**, a smart modem board built on a single-height Eurocard.

The modem is said to be compatible with the standard G-64 bus. It was designed for data communication over the public switched telephone network or over leased telephone lines. It can transmit data at 300 bit/sec. in full-duplex mode or 12K bit/sec. in half-duplex mode.

The Gesmod-1 costs $750.

Gespac, 100 W. Hoover Ave., Mesa, Ariz. 85202.

Anderson Jacobson, Inc. has announced the **AJ 9631-S** V.32 modem.

The full-duplex, 9.6K bit/sec. modem is said to operate on dial-up networks with a single phone call or on 2- or 4-wire leased lines. It is V.32 compatible and provides Trellis coded modulation, local and remote echo cancellation and satellite transmission capability.

It also has an integral V.25 synchronous autodialer.

The AJ 9631-S is priced at $2,995.

Anderson Jacobson, 521 Charcot Ave., San Jose, Calif. 95131.

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Of course, it didn't take long to get the system off the ground. INTERMEC bar code systems are designed to talk with virtually any mainframe under any operating system.

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SYSTEMS & PERIPHERALS

HARD TALK

James Connolly

Amdahl learns lesson

There was one line in Amdahl Corp.'s product announcement that seemed simple enough to be less than noteworthy — but could be all too indicative of attitudes in the computer industry.

Amdahl followed up IBM's introduction of enhancements for 3090 mainframes by offering enhanced models of its own Amdahl 5890. There was little startling in that move, which not-so-coincidentally involved Amdahl copying IBM's decision to call its new systems the E series. After all, Amdahl makes its living in the IBM-compatible world.

The line in question read, "Currently installed 5890 processors can optionally be upgraded to the E models for a charge of $120,000. . . ." It may be that $120,000 is a lot of money to spend for a 4% performance boost. But at least the option is there.

When IBM announced its E models, the company boasted that customers could realize price/performance gains of 25% to 28% through upgrades. However, in that case, the upgrade involved jumps from one model number to another — for example, from a dyadic-processor 3090 Model 200 to a four-processor 3090 Model 400E.

Where Amdahl voluntarily quoted an upgrade price for a move such as one from a 5890-400 to a 5890-400E, IBM officials hemmed and hawed and did a quick shuffle when customers and the media asked for price and performance numbers for a Model 200-to-Model 200E upgrade. IBM's only answer was that while a Model 200E is faster than a Model 200, such an upgrade was impossible — thus implying that there were technical reasons for the answer.

Those technical reasons were never made clear.

For more than a week IBM stuck to its story. They said it couldn't be done, even though

Continued on page 50

BBN adds high-speed adapter

BY JAMES CONNOLLY
CW STAFF

CAMBRIDGE, Mass. — BBN Advanced Computers, Inc., which produces the Butterfly parallel processor, has announced a VMEbus adapter designed to provide an I/O bandwidth of up to 300M byte/sec. for throughput-intensive parallel applications.

The company said a 128-processor Butterfly system with a 256-port switch can support 32 VMEbuses with two Butterfly VMEbus Adapters per bus. The Butterfly, introduced in 1981, was designed to support 1G byte of memory and 256 processors based on the Motorola, Inc. 68020 microprocessor with expansion in single-processor increments.

"For many applications, like image understanding, complex simulation and real-time control, it is critical for a high-performance computer like the Butterfly parallel processor to support equally fast I/O. With the VMEbus Adapter, the Butterfly system can expand to large configurations and maintain high throughput for I/O devices such as array processors, graphics systems and high-speed disk interfaces," said Gary Schmidt, vice-president of marketing for the vendor.

The adapter attaches directly to the Butterfly switch, which is an interconnection network providing all processors with equal access to all memory in the system. The switch connection allows data to be moved to and from the VMEbus without going through intermediate processor nodes. I/O transfers then can use memory from any processor node, reducing the load on any given memory module, according to BBN officials.

Continued on page 49

UPDATE

The ups and downs of downsizing

ANTHONY RUSSO

BY JANET FIDERIO
CW STAFF

There is no doubt about it: Smaller systems, both minicomputers and microcomputers, show superior price/performance ratios when compared with their bigger mainframe brothers. But what role can these systems play in the traditional MIS shop? Under what circumstances should smaller systems run, or develop, traditional applications? When is downsizing a good idea?

Computerworld invited three professionals to discuss downsizing and discovered that although large shops may be keenly eyeing new technology, the hurdles to its rapid adoption are many.

The three roundtable participants are Martin A. Hupka, assistant vice-president

Continued on page 53

SI883 answers DEC disk

BY JAMES CONNOLLY
CW STAFF

MILPITAS, Calif. — System Industries, Inc. has followed up Digital Equipment Corp.'s announcement of a 2.5G-byte storage array with its own 4G-byte storage subsystem for DEC systems.

System Industries introduced its SI83 Disk Drive as the foundation of the SI883 C-Series storage array and as the DEC-compatible vendor's answer to DEC's Jan. 20 announcement of the 2.5G-byte DEC SA482 array for large DEC VAX systems.

The SI883 C-Series reportedly consists of eight SI83s packaged to provide 1.5G bytes more capacity than the four-drive DEC SA482 in the same floor space. The SI drives were designed to be attached directly to DEC's HSC50, HSC70, KDB50, KDA50 and UDA50 controllers.

"The new SI83 drives deliver an average seek time of only 16 msec, which is 33% faster than DEC's latest offering. Furthermore, advanced mechanical features such as dual-supported spindles and cartridges help SI83

Continued on page 50

Inside

- **Norsk Data bolsters ND-5000 series. Page 48.**
- **Microtouch adds touch-screen monitor. Page 57.**

IRS tries to stretch life of overloaded mainframes

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The Internal Revenue Service is taking a variety of steps — such as capping work-load growth at 10% per year — so that it can keep its nearly overloaded tax processing systems working until they are replaced in 1993 or 1994, according to testimony at a recent congressional hearing.

If the capacity stretching effort fails, mainframe capacity could run out as early as mid-1988 and the IRS might face a processing disaster such as the one it experienced in 1985, according to the U.S. General Accounting Office (GAO).

IRS Commissioner Lawrence B. Gibbs said the IRS is acutely aware of the capacity problem and is taking action to stretch the capacity of the Unisys Corp. 1100/80 series processors at 10 service centers. Unisys is the product of the merger of the former Burroughs Corp. and Sperry Corp.

The IRS had considered replacing some mainframes in 1989 as an interim step to boost capacity but discarded that idea last April in favor of stretching the life of the old processors and concentrating on developing state-of-the-art information systems under the Tax System Redesign program, to be deployed in 1993 or 1994.

The initiatives include spreading the tax processing work load better among the service centers; purging unnecessary data from on-line data bases; limiting computer applications growth to an 8% to 10% annual rate; increasing the efficiency of Cobol software for weekend processing by 25%; and adding more Unisys processors where needed.

The IRS said it believes these actions will stretch the useful life of the 1100/80 processors to 1993, but the GAO auditors are less sure. The GAO said its rough calculations show that the effort will make the systems last only until mid-1991, leaving a possible gap of 18 to 30 months.

James R. Watts, associate director of the GAO's information management and technology division, strongly urged the IRS to improve its ability to monitor mainframe performance and work load. Otherwise, he said, the "IRS will not have adequate information to determine whether its initiatives are working and could find itself short of computer capacity earlier than planned, without enough warning to take

Continued on page 50

Norsk adds high-end system to ND-5000 series

BY JAMES CONNOLLY
CW STAFF

WESTBORO, Mass. — Norsk Data NA has added a high-end system to its ND-5000 series with company claims of up to eight times the capacity of the current ND-570/CX.

The ND-5700, ND-5800 and ND-5900 models are available in single-cabinet versions, although the ND-5900 is a multiprocessor configuration that can include up to four ND-5800 CPUs. The systems are designed to run as the primary computer in a medium-size network or as a local processor in a large organization's distributed network.

The systems were designed to run either of two Norsk operating systems. They run Norsk Cimtran and Norsk NDIX, which is the company's implementation of Unix. The ND-5000 series, which supports up to 512M bytes of main memory and up to 7.2G bytes of disk storage, is targeted primarily toward applications requiring large data bases, such as material planning systems, order/invoice systems and information data bases.

The processors are based on complementary metal oxide semiconductor gate-array technology. The ND-5700 costs $400,000. A configured system with an ND-5800 CPU and 20M bytes of memory costs $550,000. The ND-5900 costs $875,000 with two CPUs, $1.2 million with three CPUs and $1.53 million with four CPUs.

Microvax gets image system

WOBURN, Mass. — Imaging Technology, Inc. has introduced an image processing system designed to be compatible with Digital Equipment Corp. Microvax II and other computers based on the DEC Q-Bus.

Officials at Imaging Technology claimed the Series 200 features three architectural breakthroughs that improve throughput and algorithmic flexibility. The company said the breakthroughs include a programmable video bus network that allows the Series 200 to be dynamically reconfigured under software control.

Another advance is a dual-scanning frame buffer supporting parallel real-time operations on one or more images. The third feature is a multiple-instruction, multiple-data array processor that is closely coupled with image memory via a dedicated high-speed bus.

The Series 200 is designed for applications that require large image memories, video-rate pipeline processing and high-speed nonpipeline operations.

The subsystem consists of four modules that are linked to a Microvax II via a Q-Bus repeater, the company said. The modules are an analog/digital interface, a dual-scanning frame buffer, a 50 million operations per second pipeline processor and a closely coupled array processor operating at 16 million operations per second.

An entry-level Series 200 costs $28,995 for the four modules, a Q-Bus repeater, a chassis with power supply and DEC MicroVMS-compatible software. Additional frame buffers cost $4,995.

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Systems maker shifts to integration

BY JAMES CONNOLLY
CW STAFF

WILMINGTON, Mass. — Compugraphic Corp. recently introduced an interactive document-publishing system and announced a strategy emphasizing greater systems integration and a move toward open architecture based on standard hardware and software platforms.

"Compugraphic is developing integrated systems that provide the next step up for users of entry-level desktop products," said John M. Duker, Compugraphic senior vice-president of sales and marketing.

He said Compugraphic will operate as a system integrator, providing consulting services and supporting accessories and supplies. Use of common hardware and software platforms is intended to provide cost benefits and system compatibility for customers, he added.

Duker said the Compugraphic Automated Publishing System (CAPS) is designed to merge text and graphics into fully composed pages and output them on a variety of proofers, printers and typesetters.

CAPS is designed to accept text input from a range of word processors, personal computers and mainframe- and minicomputer-based text editors and front-end systems.

Graphics can be input from a variety of computer-aided design and technical illustration systems, including graphics packages used with personal computers. The system also accepts line art and photographs from the Compugraphic Scanner 2000, Duker claimed.

CAPS, which runs on a Sun Microsystems, Inc. workstation, is a Unix-based software package that supports Xerox Corp.'s Interpress and Adobe Systems, Inc.'s Postscript page-description languages. A Compugraphic spokesman said Interpress will soon be available on its CG 9600 Imagesetter.

Plain-paper printer

The company also announced the CG 400-PS, an 18 page/min, 400 by 400 dot/in., nonimpact, plain-paper printer that incorporates Postscript.

The price of CAPS ranges from $49,500 for an entry-level hardware and software configuration to $113,500 for a high-end configuration. A mid-range system costs $73,500 with a 170M-byte disk drive, a cartridge tape drive, 4M bytes of memory, a 19-in. screen and two ports. The CG 400-PS costs $29,900.

In other announcements, Compugraphic doubled the speed of its MCS 8000 digital typesetter to 200 line/min and added enhancements to its Q6000 text and graphics system and MCS Powerview interactive workstation.

Adapter

FROM PAGE 47

The VMEbus Adapter operates with a standard 32-bit address and data VMEbus and consists of two boards driven by a 68020 chip. One board contains a VMEbus interface and plugs into the VMEbus backplane. The other board, containing the 68020, interfaces to two ports on the Butterfly switch and occupies one slot in the Butterfly card cage.

The adapter can provide bandwidths ranging from 6M to 300M byte/sec.

The adapter costs $15,000.

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Dr. Alan C. Kay, Apple Fellow, pioneer and key innovator in personal computing and artificial intelligence. Invented "Smalltalk" computer language and pioneered the use of icons.

Dr. Douglas B. Lenat, Principal Scientist for Microelectronics and Computer Technology Corporation (MCC), pioneer in machine learning through study of the nature of heuristics.

Dr. Roger C. Schank, Professor of Computer Science and Psychology, Yale University, and Chairman of Cognitive Systems, Inc. Pioneer in development of computer models of memory and learning.

Dr. Herbert Schorr, Group Director of Products and Technology, IBM. Responsible for the introduction of new, advanced technology and applications.

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Amdahl

FROM PAGE 47

the basic Model 200 box was integrated into the Model 400E when a user laid out the requisite $3.7 million. "Why can't the vanilla Model 200 be made into a 200E if that same box can be used in a 400E?" IBM would be asked.

The IBM answer typically was, "Because it can't." The company's only concession was that if there were enough user demand, they might someday find a way to handle upgrades such as a 200-to-200E move.

Finally, IBM admitted what so many observers had figured out on announcement day. Upgrades were technically possible, but IBM chose not to offer them at this time.

What harm would there have been in providing a price, even an excessive price, for an upgrade to E models with IBM's original announcement? The odds are that many users wouldn't opt for such an upgrade if it meant shutting down their on-line systems and paying a healthy price for a gain of 2 or 3 million instructions per second (MIPS). But IBM had an obligation to those who would want to make such a move.

Some of those customers may have been among those who already were upset when IBM failed to tell them it planned to rework the 3090s only months after shipments began for most models.

How does IBM justify its actions to loyal, early buyers who paid $8 million for a Model 400 in September or October, only to realize they would have done better to wait until January and pay about the same price for a system with an extra 10 MIPS of power — the equivalent of an IBM 3081 Model D?

The only justification is that it was one more public relations and marketing blunder by a company long considered to be one of the world's best marketing organizations.

Meanwhile Amdahl, a company built by former IBM employees trying to take advantage of IBM user dissatisfaction more than a decade ago, gave its users an option. That option may not be a good deal for many users, but Amdahl knew enough to make the offer. It is a case in which the parent can learn a lesson from the offspring that ran away so many years ago.

IRS tries

FROM PAGE 47

corrective action."

IRS officials agreed and said they have formed a task force to improve work-load analysis and plan to begin full monitoring of computer performance by June 30, Watts reported.

The GAO official added that the IRS goal of restraining workload growth to less than 10% a year is the most important "stretching-out" initiative and also the most difficult to achieve.

Pressure for larger work loads will come from IRS plans to install faster front-end processors and expand its network of terminals, as well as a variety of new applications, some of which are related to the Tax Reform Act of 1986.

The congressional hearing was chaired by U.S. Rep. J. J. Pickle (D-Texas), chairman of the House Ways and Means Committee's Subcommittee on Oversight.

Pickle said be wants to ensure that future tax processing seasons will run smoothly and that IRS computer operations can meet the increasing demands on the tax system.

SI883

FROM PAGE 47

disk drives achieve a mean time between failure rating of more than 35,000 hours," said Jay Greenberg, System Industries senior vice-president of engineering.

The SI883 C-Series features dual-channel capabilities allowing fault-tolerant configurations for systems employing two discrete disk servers.

The subsystems will be available in early March. Prices range from $16,000 for a single drive to $115,000 for an SI883 setup.

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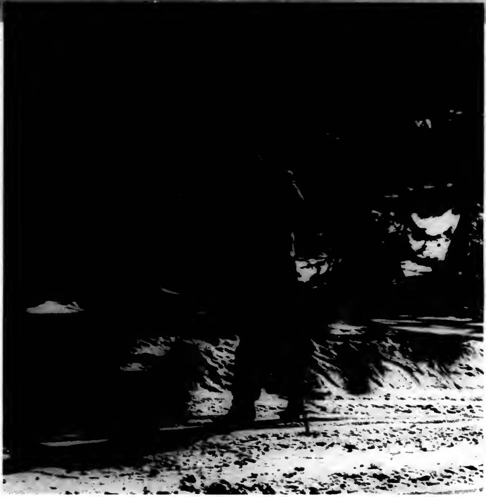

Henry F. Nanjo
Director Systems and Data Processing City and County of San Francisco
Age: 58
Budget: $30 million
Cross Country Skier

As the City and County of San Francisco has discovered, there's only one sensible way to evaluate and integrate products into one cohesive information system. And that's with a department strongly guided by an experienced, innovative information services professional like Henry Nanjo.

Henry didn't always have a multi-million dollar budget, with responsibility for the acquisition of hundreds of micros every year. In fact, when he started working with San Francisco's computers 31 years ago, Henry didn't even have a DP department. He simply worked in accounting with his state-of-the-art IBM 305.

Over the years, many of the applications Henry developed have helped keep San Francisco among the country's most innovative users of computer technology.

San Francisco made headlines recently with the first computerized fingerprint matching system. With it, prints can now be matched in less than 3 minutes—a far cry from the 4 weeks required to do the job by hand. Already, the system is credited with helping solve some 40 major unsolved crimes.

Today, Henry is in the process of evaluating both existing and potential vendors of minis and micros—and maintaining an approval list of vendors for purchases made throughout the organization. Every computer-related expenditure, whether it falls within Henry's $30 million budget or the City and County's $60 million budget, must bear the name of a vendor appearing on Henry's approval list.

What little spare time Henry finds, he spends with his sons camping, hiking and cross country skiing in areas like Tahoe, Yosemite Park and the Shasta Mountains.

If you'd really like to reach Henry, you'll find him on Monday mornings with his copy of Computerworld—he's been a subscriber since the first issue. He finds Computerworld's perspective meshes closely with the way he does business, covering everything from mainframes to micros, software and state-of-the-art technologies.

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Downsizing

FROM PAGE 47

architecture of the Hartford Insurance Group; Gary Perrelli, controller for Cox Cable, Greater Hartford, Inc.; and Timothy O'Connor, manager of computer operations at United Technologies' Hamilton Standard.

What type of company is best suited to downsizing?
O'Connor: I think downsizing fits shops that are decentralized and that have applications and operating systems that aren't going to change that much. If you're on the leading edge in a lot of areas, I don't think it works well, because then you just can't put the expertise out in 35 different sites to keep it going.

Hamilton is very strongly centralized, and I don't see any large projects coming down the line that would really fit the classic definition of downsizing. I see a lot of distributed [processing] out there to intelligent terminals, but to pick out a project and say, "Well this is something I'm going to downsize," I don't see that happening in the next two, three, maybe even four years.

But can downsizing take place within a centralized MIS center? Would you at some point say, "Maybe we can run certain applications on a smaller mainframe as opposed to a very large mainframe?"
Hupka: I think it's a matter of semantics. I think what Gary [Perrelli] is doing is really decentralization; it's to say, "I can run it on a smaller machine, and I can take advantage of that."

It's not very different in our environment. We're highly centralized from the standpoint of economies of scale, but that doesn't mean we can't distribute some of that work out into other areas. I think the Hartford and Hamilton Standard are in the same spot: We're centralized organizations, but that doesn't mean we don't decentralize the functionality and hardware that would follow it or is required to support it. All we're talking about is how we support it.

In the Hartford's shop, we have 2,200 people building applications and changing them all the time. We're regulated by the government, and every state does things differently, so we're constantly changing.

So, yes, we decentralize the functionality, but how we manage it and control it is from our centralized environment. I think what you've done at Cox, Gary, is decentralize your support and your direction. The only question I have is: Once you decentralize and each area has its own options, what happens next week if DEC comes in and says, "Hey, I can really run this cheaper"? Can you say, "OK, now I'll run it on my DEC machine"?
Perrelli: Well, the important issue there is the standardization. There are other cable systems within our company that are not running off of System/36s and 38s. We have some Tandem equipment out there, and it's also supported by a different vendor. But I think the end result is what we're looking for.

Obviously, we have to bill our customer. Now how we do that depends on the size of the cable system. The end result is that we need to roll our billing package into our financial package and report those numbers at the end of each month to our corporate office. As long as that information is standardized to some degree, we've reached that end result.
Hupka: Your central environment doesn't need to get into your office?
Perrelli: Right.
Hupka: The problem we run into is that our people in our distributed environment need to get to those large data sources sitting back in the mainframe. I also have people in other areas who need to get to that file information out in the field.

If you can truly be independent, then you can have a different type of system. Some of our office systems we have out there [in the field] aren't connected to anything. They process our administrative, clerical work — our Wang word processing systems. They don't have to be connected to anything. So, yes, they can be independent. Is that departmentalized? It's "kind of" downsized. Why run that stuff on the mainframe?
O'Connor: It's tough defining what downsizing is. A lot of the concerns we're talking about here are for classical DP data centers — commercial-type applications. If you look on the engineering side of the house, of course, there are applications for DEC VAXs, and we've got a lot of them at Hamilton.

We've got more than I know about, which I'm embarrassed to say, but it's not unusual for us to win a contract, and part of that contract is we will buy a machine — let's say a VAX — and we'll develop the software in a format that the government, or whoever, the vendor is, wants, and when the product goes out, we send everything out. So in our engineering/development area, there is a lot of downsizing, but what downsizing there is isn't planned. I don't think anybody in MIS sat down and said, "Hey, jeez, we're going to downsize this thing." It just happens.

Can you downsize within your own MIS shop at Hamilton Standard?
O'Connor: I can't imagine bringing in a 4341. If anything, it would be a front end to the CPU for something else.

We're in a constant state of change in a lot of areas. And we would have to pick and choose very carefully anything that we would want to downsize.

The other thing we get into is the government is very conscious of security now. How do you secure those data bases out there in the field? How do you maintain access? What kind of communications schemes or encryption do you need out there?

And another cost that I would foresee in doing a lot of downsizing would be in software licenses. There's even a fine line when you run a 3084 with a dyadic machine that has two serial numbers. If it's tightly coupled, you pay one license. If you happen to cut the cord, it's two. It's the same machine, it's still in the same room, it's still doing the same thing, but all of a sudden you're paying $100,000 more a year for software.

So those are the issues that I see would be tough to address. Now, downloading functions to intelligent terminals, that's a different subject.
Perrelli: Those are three main hurdles that we had to get over. The fact is that Cox not only downsized the MIS department, they downsized the corporate accounting department, too. They laid the groundwork for some standardized reports that give the [corporate] engineering, marketing, accounting and tax departments the information they need on a monthly basis.

Granted, it wasn't the easiest transition to make; for years, those people always had those reports. But I think we've gotten to the point now where they understand that the information comes in once a month, and with that information they can pull the numbers that they need.
Hupka: I think it's a benefit that you know that you're not going to pick up a cable company and move it. If you look at it from the insurance standpoint, we've got to look at our market, how our office has to expand and move to follow the market. We may have an office that's large through one cycle — two years — then we may want to downsize the office because the market isn't there anymore. We have to manage those fluctuations and balances.
Perrelli: The cable industry is unique in that regard. I think the way Cox looks at [downsizing] is that now they have cable systems that do their own billing, their own accounting. If the time comes when they want to sell out or buy a cable system, the opportunity's there. They've got it in one central location, so it's not that difficult to move things around.

Was security a big issue while Cox was downsizing its operations?
Perrelli: Definitely. The System/36s and 38s have a fairly good security package. In addi-

The roundtable participants

Gary Perrelli, controller for Cox Cable, Greater Hartford, Inc. During his tenure at this branch operation of Cox Enterprises, Inc., a cable television and communications conglomerate based in Atlanta, Perrelli has experienced downsizing firsthand. Although he is the branch's controller, due to a massive downsizing and decentralization program at the parent company, he is also now responsible for his office's IBM System/36.

Two years ago, Cox Enterprises supported all of its branch office financial applications through dumb terminals connected to its IBM 3081 mainframe. During mainframe downtime, however, cable systems were unable to access customer files. In response, Cox installed either System/36s, IBM System/38s or Tandem Computers, Inc. minis in each of its cable offices. When the MIS reorganization was complete, the cable offices began to process all payments locally and to realize the benefit of on-line customer inquiry.

Perrelli's perspective on downsizing: "It's an interesting philosophy, and it's worked in my industry. I'm not sure it can work everywhere, but I think Cox has made the best of it."

Timothy O'Connor, manager of computer operations at United Technologies Corp.'s Hamilton Standard. The company, an aerospace manufacturer and the world's leading supplier of propellers, is a division of United Technologies and is based in Windsor Locks, Conn.

O'Connor manages a highly centralized data center with three IBM mainframes running IBM MVS. The work load is split between its commercial processing needs — accounts receivable and accounts payable — and the company's engineering development processing needs.

Although Hamilton does not have a formal downsizing policy, it downsizes by "default." It distributes some of its processing by off-loading some jobs to its extensive computer-aided design and manufacturing network and the newer engineering workstations. It also runs standalone materials requirement planning applications at its Midwestern plants.

O'Connor on running large DP applications on smaller systems: "How will we support downsized systems, and will we run into the cost of duplicate software licenses per CPU serial number? What about security?"

Martin Hupka, assistant vice-president of architecture for the Hartford Insurance Group. Hupka's department, located in company headquarters in Hartford, Conn., oversees two types of projects: those that actually build the applications to support the business and those that introduce or position new technology or take advantage of expense reduction and cost performance.

The Hartford's corporate offices operate under a three-tiered architecture with a centralized mainframe processing environment and departmental minis and micros. The architecture is designed to reduce the drain of expensive mainframe computing power. In addition, the Hartford's mainframes support an external network of 8,000 terminals in branch offices.

Currently, the company is experimenting with placing some processing power in the claims processing offices.

Hupka's thoughts on downsizing and distributing processing: "Costs per million instructions per second or cost per CPU cycle may be cheaper with smaller systems than on the mainframe, but what are the other offsetting costs? What support structure must be put in place? Where do new vendors fit in?"

Downsizing

FROM PREVIOUS PAGE

tion, what we've done is, with our software, we've menu-restricted people and only allow them to get into the functions they need. One big problem is that we have financial information out there — rates. We had to be careful, so we set up a good security system. Also, [headquarters] placed people into each of the systems — the controller, who'a responsible for the accounting and data processing functions. That person is responsible for security ton. They've also increased their internal audit staff, which visits a lot more frequently onw.

Do any of you have pressure from upper management — even the chief executive officer — to move to less expensive processors because of increased price-performance ratios?

Hupka: Sure. They read the magazines. So we have to stand up and answer to some of those issues. After all, the first thing they zero in on when you talk to them is some article that says CPU power is cheaper now.

And then we're in the same boat as the discussion here. We say, "I understand it's cheaper, but listen, here's the cost of doing that. If you want that functionality there, here'a the total cost of it." You have to bring everybody back into reality to get that total picture. And then, it's still their decision, how they want to spend the money. The key issue is that of support costs.

O'Connor: We all hope we make cost-effective decisions. And we are asked to all the time. But the other thing that's happened is mainframe CPU costs have been coming down, ton.

So everything's been going down. We're in a pretty nice industry for that. And if you break it down, sometimes you've got to look at what's the cost per user? Cost per unit? Cost per MIPS? Things like that. Because we're a zero-budget department, we charge back everything.

We're of the mind that, if our users are willing to pay for it, then the costs are reasonable, and if the costs are essentially flat, we don't feel challenged. We feel we are doing a good job for the division, and if there are applications that we would look at for downsizing, we also have the staff to do that.

If you had the opportunity to organize a large MIS shop from scratch, one to support 10,000 users, would you go with the traditional large mainframe setup, or would you experiment with perhaps superminis or small mainframes for some of your applications?

O'Connor: That's a tough question to answer. I don't see anything much that we would do differently. I think we would change our office systems, which we run on Wang now. We have their Office Information System that does not grow as well as the Wang VS. As you know, you can have as many users as you want — as long as it's 24.

And that's the only thing I would see that I would change in the large data center. We service our users very well with what we have, and with the planning process and all else that goes on, I think we have a good setup.

> "IF OUR users are willing to pay for it, then the costs are reasonable; if the costs are flat, we don't feel challenged."
>
> TIMOTHY O'CONNOR
> HAMILTON STANDARD

Hupka: I think we would go with our three-tiered architecture, and the only difference would be that we would look at some of the systems that were built 10 to 15 years ago that assumed everything was going to run on the mainframe — we would look at how you build them. Those pieces that belong in a mainframe, you put in a mainframe. Those pieces that now you could put out in the front end, you put out there.

I don't think anyone would take a Lotus spreadsheet and run it on a front end. So you have to look at the application. Today, we have a lot more options. When you start new, you can choose those options that you really want. You would be in a position to make better decisions.

O'Connor: And again, you would have to start with a basic philosophy of "What do I want to do with my data?"

What about downsizing application development?

Hupka: That'a the whole issue of portability. That says, "Hey, if I can get away with it, can I economically build something that would run on my processor for 10 people, and can I use the same application to run on my mid-size processor for 200 people and run on my mainframe?"

I sure would like to do that, because from a support standpoint I need less people to maintain the system. I need only one type of expertise. Again, if we could start fresh, we would like to do that, but where we are today it doesn't always happen. I'm sure that you at Cox, Gary, must have some portability problems since the System/36 and 38 architecture isn't yet together.

Perrelli: If a program change is needed, it has to be rewritten on the System/36 and on the 38.

Hupka: That'a always an issue, so now you have two changes. It would be nice if you had just one change, and it worked on both systems — and it should be across vendors.

O'Connor: Even your big software houses can't come up with software that does that.

Hupka: And some people talk about the Unix operating system as if you could run it anywhere. What about all the old applications you have running, and how do you transition them?

O'Connor: In the meantime, people keep publishing articles that executives keep reading that I have to keep delivering, and a lot of it we call 'The emperor's new clothes.' Nobody can see them, but everyone says they're there. •

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Bill Lowe, a manager for Los Angeles-based Merit Steamship Agency, Inc., added that ITT Worldcom experts had made it "much, much easier" to transmit cargo schedules.

Merit, a nationwide shipping agency, is one of the few agencies to represent a number of steamship companies in worldwide cargo transport, Mr. Lowe explained.

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NEW PRODUCTS

Processors

Dynatem, Inc. has announced the **DCPU1** Cmos CPU board for the VMEbus.

The module is said to offer two serial ports, 40 programmable parallel lines, three 16-bit timers and a real-time clock/calendar. It offers up to 512K bytes of dual-ported static random-access memory, accessible with no wait states. It also has provision for up to 128K bytes of programmable read-only memory.

The board is based on Cmos Motorola, Inc. 68000 or 68010 CPU devices at speeds up to 12.5 MHz. It features an on-board rechargeable battery to maintain the memory and clock and conforms to VME Revision C specifications.

The DCPU1 costs $975 with 64K bytes of static memory. With 512K bytes, it costs $1,675.

Dynatem, 19 Thomas, Irvine, Calif. 92718.

Data starage

Roland DG has announced the **SYA-350 Data Buffer.**

The buffer is said to store output ou a removable 3½-in. disk as it is simultaneously buffered to the peripheral. Once the data is on the disk, the buffer can re-output it to peripherals such as an X-Y plotter or printer. According to the vendor, the same operation can be repeated without having to interrupt work being done on the host computer. Each 3½-in. disk can store up to 640K bytes of data.

The SYA-350 Data Buffer can convert serial or parallel input to output. Supported handshakes include Xon/Xoff, Data Set Ready, Acknowledgment/Negative Acknowledgment.

The SYA-350 costs $1,195.

Roland DG, 7200 Dominion Circle, Los Angeles, Calif. 90040.

Data terminals

Microtouch Systems, Inc. has announced the **Multisync Touch** monitor.

The monitor is said to employ the NEC Corp. Multisync monitor integrated with the Microtouch Screen, the company'a analog capacitive touch screen. It is able to display up to 64 colors . It is compatible with the IBM Color Graphics Adapter, Enhanced Graphics Adapter and Professional Graphics Adapter.

The 14-in. monitor features a solid glass sensor with a conductive coating bonded to its surface.

The Multisync Touch monitor is priced at $1,795.

Microtouch Systems, Ten State St., Woburn, Mass. 01801.

Tektronix, Inc. has introduced the **4209 Intelligent Color Graphics Terminal** as a replacement for its 4109A and CX4109A terminals.

The 4209 includes 512K bytes of memory, 640- by 480-pixel resolution, up to 16 graphics colors and eight alphanumeric colors from a palette of 4,096 and Digital Equipment Corp. VT100 compatibility.

Other features include mouse support and a CX interface option for interfacing to an IBM 3274 or 3174 controller with 3179 alphanumerics and a 3270-style keyboard.

The 4209 is priced at $6,995.

Tektronix, P.O. Box 15273, Portland, Ore. 97215.

Graphics systems

Calcomp has introduced the **CGS-4600** interactive graphics subsystem designed to plug into the Q-bus of a Digital Equipment Corp. Microvax II computer.

The subsystem is said to achieve color graphics with a resolution of 1,280 by 1,024 pixels. It is available as a complete subsystem or as a graphics engine alone. The graphics engine occupies a single slot in the Microvax II.

A complete subsystem with a 15-in. monitor costs $6,995. With a 19-in. monitor, the subsystem costs $9.495. The graphics engine card alone costs $3,995.

Calcomp, 65 River Road, Hudson, N.H. 03051.

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Others are using the PC and BABY/36 or BABY/34 combination to virtually eliminate on-line processing and communication costs at remote sites. Some are doing all of their software development on PCs, to free their minicomputers for production work. And still others are using this combination as an entry point into RPG II programming, then upgrading to a minicomputer or PC network as their needs grow.-

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Distributor inquiries welcome.

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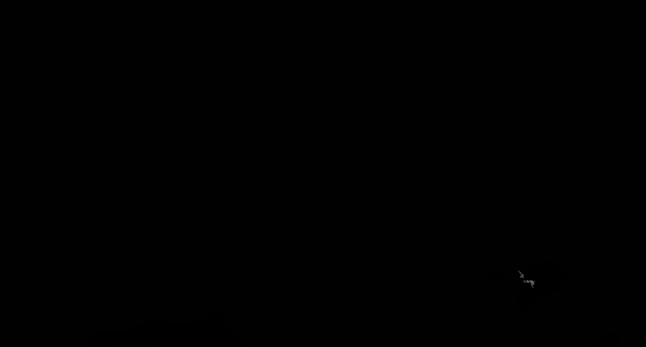

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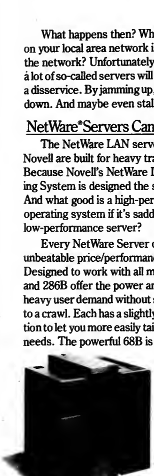

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IN DEPTH

You thought laptops were only for loners . . .

Now some of the largest corporations tie laptops to their mainframe DP strategy

BY ASHLEY GRAYSON

When I first started carrying a Hewlett-Packard 110 and Convergent Technologies Workslate into restaurants, professional people would timidly approach and ask, "Is that a computer? Wow!" Just last week, our waiter in a Chinese restaurant remarked when dropping off the spicy chicken, "Ah, you have the new Toshiba. I have a Macintosh myself."

The word from the growing group of professionals who are not working at their desks as much as they used to is that productivity is up, and the industry's flirtation with the small portable computer will settle into a serious relationship.

The reason for this change in attitude is twofold. First, the mess that was on your desk is now in a computer. In order to take work home or bring supporting information to a meeting or on a visit to a remote location, the logical evolution is to carry it inside a portable computer.

The other option — to print out all the information — is less desirable, even with the latest desktop printer, because it requires too much preplanning and would possibly take a long time to print.

Second, with the pressures of modern-day business, individuals are called on to make important decisions on such short notice that there is no time to ask the clerks to pull all the files of backup information and then call a meeting and discuss options.

ALAN WITSCHONKE

Simply, the portable computer places the decision-support programs and necessary data in the hands of the decision makers, wherever these individuals may be.

Requiring key employees to journey to the electronic oracle is a waste of their time, and it makes the machine more important than the person.

Many DP managers have adopted a wait-and-see attitude toward this latest trend in computing, but by now, enough votes are in for even the most skeptical to adopt this "curiosity" as a tool.

Both large companies and individuals have achieved overall positive results from laptop and small portable computers.

Journalists were the first big users of notebook-size and small laptop computers, because the machines used full typewriter keyboards and were at hand when a story broke. By calling the modem for the paper's central computer, these writers could file their stories immediately.

Less has been said about the success of laptop computing in large corporations, mostly because many of the major users regard their portables as a competitive advantage that they do not want to broadcast to their competition.

Some, however, are willing to discuss their projects in detail, and a number of common themes appear in the stories of Du Pont Co., Chrysler Corp., General Motors Corp. and McDonnell-Douglas Corp., among others. Not surprisingly, broad planning and integration with mainframes play key parts in all major programs.

Part of an overall strategy

The most important aspect in deriving all of the benefits of portables in a corporate environment is to integrate them as part of an overall DP strategy. Users can benefit from laptop computing only when corporate facilities provide them with timely data access and an electronic mail exchange.

Only the DP staff knows where the data is and has the organization in place to maintain it, but only the users on the firing line know what they need and how they need it. Whether the

---

Grayson is the president of ADG, a firm assisting corporations in utilizing and selling high-technology products. ADG has followed the laptop computer industry since its inception.

- **Votes are in: This curiosity is a useful tool**
- **The portable as this generation's calculator**
- **Swap a convertible for a bulky desktop unit**

THE MOST encouraging aspect of the portable story is that every vendor's equipment appears to be equally good. Virtually every organization that has begun a portable project has succeeded, independent of which equipment was selected.

vehicle that delivers the goods is a service, like Compuserve, or is the company VAX, just setting up for portables is a good way to bring these diverse groups together.

Success also requires facing the training and motivation aspects squarely. Chrysler has automated its sales force with Grid System Corp. laptops and both Epson America, Inc. and Hewlett-Packard Co. printers but says it feels the cost of the hardware is not the major expense of the program. Hardware, training for the users, mainframe support and project management all share in the total cost.

Expertise improves through practice, and a portable can be a low-cost way to provide additional training hours to motivated employees. A portable allows people to learn when they are most open to accepting new ideas without being required to sit in a classroom. Equipping the training department with a fleet of portables may be a good way to bring instruction to distant departments or allow employees taking classes to do some homework.

Training is crucial to an application like sales force automation, because the sales representative uses the system either alone or in front of a client, a situation in which a less-than-polished presentation could lose an order. Ordinarily, computer lore is learned from the person at the adjacent desk, but this is not possible when portables are used in the field. During a presentation, the portable computer is potentially an intrusive prop, and the wary salesman will think twice before letting it come between himself and his customer.

If an executive is a lone user in a hotel room or on an airplane, there is no handy way to contact the support line. In both cases, proper training must build the skills required for success.

All systems equally good

The most encouraging aspect of the portable story is that every vendor's equipment appears to be equally good. Virtually every organization that has begun a portable project has succeeded, independent of which equipment was selected. At the pricey end of the spectrum, Du Pont has automated its sales force with both HP and Grid portables, while at the same time, McDonnell-Douglas is quite pleased with its field service dispatch system based on Tandy Corp. Model 100s. Other organizations report success with the Epson Geneva/HX-40 family, the NEC Home Electronics, Inc. Starlet, Zenith Data Systems Corp.'s Z-171 and Toshiba Ltd. portables.

Spurring the recent flurry of adoptions of laptops by industry have been the enticing new choices among "standard architecture" portables. A year ago, the laptop buyer had to relinquish some Microsoft Corp. MS-DOS compatibility to get a lightweight portable, and Apple Computer, Inc. Macintosh users found no options at all.

Today, the market in portable computers is divided between those that are operationally compatible with desktop personal computers and those that trade operational compatibility for superior portability.

The former category is dominated by the Toshiba T1100 Plus. Toshiba has burst forth from its low profile as a computer vendor, and, by popular acclaim, the T1100 Plus has become the new standard for portable computers. Compromising slightly on keyboard layout and abandoning the 5¼-in. disk format for the new 3½-in. disk, the Toshiba portable has been widely adopted for its high speed, 7.16-MHz Intel Corp. 80C86 processor, long battery life and light weight. It has become the new measurement standard against which all others are compared.

Grid, which has invested more than any other vendor in learning how to support corporate automation, continues to tune and improve its products. The company recently announced a software enhancement that allows its proprietary packages to run under MS-DOS.

The latest Grid Case 3 sports a 10M-byte hard disk and a fully IBM-compatible keyboard. Earlier Grid systems traded some compatibility for superior portability but were still a little too different from desktops for some buyers.

The HP Portable Plus maintains the best packaging of a laptop computer in terms of battery life, sealed unit operation and power per pound. Although not as IBM Personal Computer-compatible as the above machines, by today's standards it is still worthy of serious consideration.

The Zenith Z-181, with its eye-popping backlit screen, has been slow to reach the market, and both Grid's recently announced low-cost Gridlite system and NEC's Multispeed, announced at Comdex last November, are too new to judge, but all appear exciting competitors.

For anyone requiring 5¼-in. disk support, Zenith's Z-171 and Sharp Electronics Corp. PC-7000 have never looked better. Both offer the bright, backlit LCD

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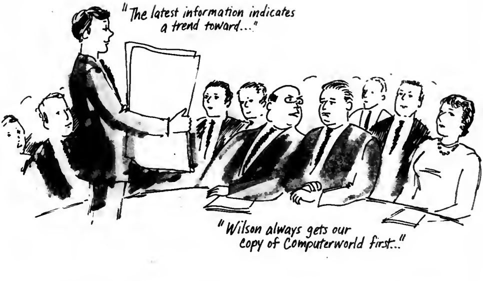
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Dynamac: *A Macintosh-compatible laptop*

used on the Z-181 and hard-disk add-on options. The PC-7000, which is not battery powered, lists at an amazingly low price for the traveling flexibility it provides.

With a weight penalty of more than 24 lbs, the Compaq Computer Corp. Portable II and the less well-known AMQ Computer Corp. AMQ 286 provide 5¼-in. disks, hard disks, a real CRT and the ability to plug in many popular feature cards. The latter two features are currently unavailable in lightweight portables. The AMQ is probably the first, let alone portable, computer to provide an IBM Enhanced Graphics Adapter as the standard display.

The new Wang Laboratories, Inc. Wang Laptop Computer is the only current portable to package a printer as an integral part of the system; the printer for IBM's PC Convertible is a snap-on option. With its 10M-byte hard disk and compatibility with Wang's office systems, it should be popular with the company's large customer base.

Of Quadram Corp.'s four portables introduced in 1986, the most interesting is the Snap 1 + 1. Offering an innovative approach to providing the convenience features of the notebook computers, like the Tandy Model 100, while satisfying the need for MS-DOS compatibility, the Snap 1 + 1 comes in two snap-together parts. The keyboard and display act like a notebook system that, when snapped onto its back end, becomes an MS-DOS disk-based system. Both hard-disk and dual 3½-in. floppy-disk back ends are promised. This laptop could pave the way for the next generation of portables, or it could become the Edsel of the computer industry.

This year, the market will see the introduction of several Macintosh-compatible portables. Intellitec, Inc. and the Apple-authorized Dynamac Computer Products, Inc. have both promised delivery soon. These machines lack the flexibility for innovative packaging provided in the PC market today but are a great step forward for Macintosh users.

Other, non-MS-DOS-compatible laptops offer superior portability if the application demands it or if other constraints of budget or physical size outweigh the compatibility issue. The Tandy Model 102 is a smaller and improved version of the popular Model 100. The NEC Starlet, Tandy 200 and Epson Geneva/HX-40 are all small, full-function portables that will go anywhere and can communicate via modem with a mainframe.

Close ties to home office

Sales-force automation is a hot area at many companies, because sales representatives are usually expected to function alone while still maintaining close ties to the home office for information like the latest product briefs, prices and delivery schedules. The portable gives them a reference library, analysis tool, training module, communications system and filing system that is open 24 hours a day.

"Prior to portable computers," notes Ray Long of Du Pont's Technical Assessment Group, "our sales people had to interpolate product mixes from data in published applications notes and sometimes haul large reference books around to make the facts available. Their portables are more accurate and easier to work with than the printed charts."

In front of the customer, sales representatives can use laptops programmed to show alternatives to shift the buyer's attention from "Will I buy?" to "What will I buy?" Insurance agents like Equitable Life Insurance Co.'s Bob Rea have found that complex policy alternatives are more easily demonstrated on a computer than when they are estimated from standard tables.

Here, the laptop becomes a sales tool. It can function as both a presentation device, replacing flip charts, and as a preparation aid, assisting in time management and proposal development.

Note, however, that to take full advantage of these opportunities, the remote user must have stored, or be able to access, the latest prices, delivery status and product specifications. A central computer — either the corporate DP machine or one fed by it — is the natural choice for

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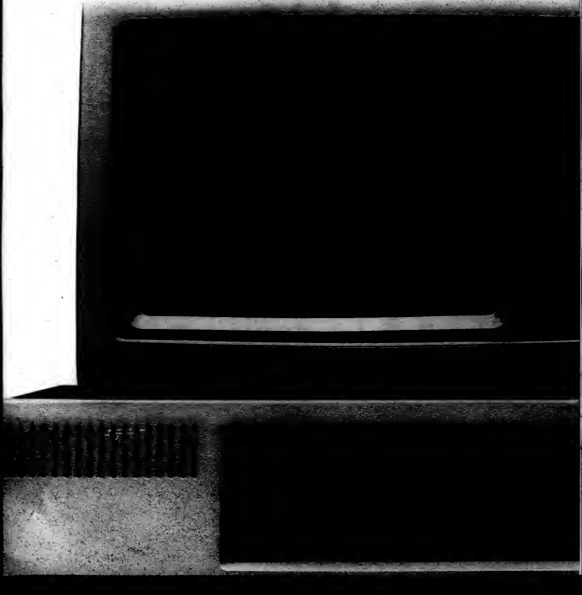

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storing information that must be pulled from the company's existing data bases.

The new calculator

Organizations whose field forces are consultants and auditors have also adopted portables. The portable computer has become this generation's calculator for anyone who computes at customer sites.

As applications grow beyond a pair of floppy disks, the white-collar migrant worker can no longer borrow a PC in a remote office to whip up a few numbers or draft a memo. Resident pop-ups, custom autoexec files and complex interactions among PC programs, not to mention copy protection schemes, make it unfeasible to mooch a computer on demand.

Often, information collected by the field representative at the drilling site or on the factory floor is time-critical: It must be transmitted back to the corporate mainframe and processed further so that the corporate information base stays up to date. Once again, the DP center is the most logical department to collect and merge the new data with existing data and programs.

McDonnell-Douglas uses Tandy 100 notebook computers to dispatch field engineers for its Unigraphics computer-aided-design products to client sites. This saves travel time and ensures quick repair because the portable computers can also download needed diagnostics from a central data base. A Data General Corp. Eclipse MV/10000 superminicomputer ties all the field people together by providing schedule information, E-mail and diagnostic libraries. The portables and the central computer are two halves of a single system, according to Earl Stallard, a senior MIS section manager at McDonnell-Douglas.

Larry Henley, a member of McDonnell-Douglas's In-House Development Group, adds, "The Tandy products were selected because they met the project requirements, were available off the shelf and cost less than competitive alternatives."

Thus, the portable enables an organization to deliver its collective knowledge to the point of need and draw upon its scattered resources in a more timely manner. Catherine O'Connell at Fireman's Fund Insurance Co. notes a purely human benefit of her company's Lotus Development Corp. 1-2-3-based HP 110 portables: The regional auditors do not have to decipher the handwriting of dozens of field agents.

Alternative to desktops

In addition to mobile use, the small portable's popularity has increased recently because of an unexpected application as an alternative to a bulky desktop machine. Not only is the laptop around when needed, but it is also easily banished when it might intrude — something not conceivable with an ordinary computer or terminal.

Surprisingly, the IBM PC Convertible, the first machine to address this market by design, has fared least well in the retail market. Providing fewer features per dollar than most of its competitors, the PC Convertible has not appealed to buyers.

Recently announced IBM enhancements [CW, Feb. 2] improve many small technical points on the PC Convertible. These will be available to users of the older systems. Nevertheless, the PC Convertible still has the weight, size and expansion problems that inhibited sales of the original model.

Meanwhile, Toshiba's revolutionary T3100, a lightweight, though nonbattery-powered, Intel 80286-based machine, was the pioneer in this market and is currently the only real contender. Whether the need for a 15-lb IBM Personal Computer AT-compatible existed in secret or whether this product created its own market may never be known, but its success is undebatable.

Although too new to the market for many formal programs to have embraced it, the T3100 seems to appeal to innovative executives who have adopted the sleek design and small footprint of the machine for their desks.

Board support

Although the T3100 is the most popular, the new generation of laptops — including the Zenith

Continued on page 74

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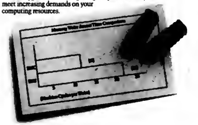

Pack up your software in a laptop bag

As recently as a year and a half ago, evaluating a laptop computer involved assessing its software as well, because most portables included custom "portable" software. Appointment packages and portable or subset word processors and spreadsheets are packaged with the units.

Today, no trade-offs are required, as virtually all Microsoft MS-DOS packages will run on the current crop of portables. Buyers have clearly established that above a base weight of about four pounds, full compatibility is worth having to carry another six pounds.

Three possible directions are open in selecting software for a portable:

- Run the same software as your desktop personal computers.
- Run packages constructed specifically to complement your mainframe.
- Run something completely different.

If you are building a personal tool, you can choose almost anything that appeals. If you are setting the standards for your company, you need to plan more carefully.

Same thing in new places

The first choice — running desktop PC software — offers obvious benefits, since you or the users will not have to learn new program interfaces. Data files transfer from desktop micros to most MS-DOS-based portables with little trouble.

The biggest operational difficulty to avoid in this environment is "version skew" of data files. Data bases updated on a portable must be returned to the master PC to avoid losing the new information.

Also, master files on the personal computer should not be updated by someone such as a co-worker or secretary while also being processed in the portable to avoid the classic simultaneous update problem.

Users who have previously maintained their files on a pack of 5¼-in. disks should understand the potential problem with updates, but additional options provided by laptops with 3½-in. disks and 10M-byte hard disks will create the risk of media-specific versions getting out of sync. If you are selecting portables for a companywide program or are counseling departments that have already acquired units, working out an operational solution is vital.

Mainframe support for portables

The second alternative — supporting portables from a mainframe — can be a complex issue, because it will require software on the mainframe, a telecommunications program and possibly custom programming in the portable. The following are a few aspects to consider when preparing to meet this challenge.

Adaptability. Existing mainframe applications are often designed to drive an IBM 3270- or Digital Equipment Corp. VT100-type terminal. Although emulators for these terminals exist for personal computers and can bring them on-line quickly, a portable computer may not adapt as well as a desktop in some cases. Factors to consider include how the data will be used, how long a transaction will take and possible security problems.

Use. Most portables will not provide an attached printer, so sending formatted reports may not be required. Consider transmitting raw data in a popular spreadsheet or data base interchange format and supplying users with a skeleton program to manipulate the data.

Length. Most on-line terminals sign on and off once a day; even dial-up terminals in remote offices may maintain optimized telephone service. But the remote portable user will probably be calling from a client's office or even over a cellular phone from a moving car.

Can the mainframe handle the desired queries quickly enough? Sign-on validations frequently take longer than actual transactions, so consider this time requirement also. Laptop users may turn in their units if they must wait 15 minutes just to sign on. This may not be an unusual experience if DP set up the on-line system 10 years ago.

Security. The largest DP security breaches recorded so far stem from the security system designers' unwarranted assumptions that there can be some physical restriction on access to the inquiring terminal. This is clearly not the case when a portable, set up to autodial your mainframe, can move between any two airports in the world in a matter of hours.

Since a principal virtue of the portable is to make nonproductive hours productive, you might opt for the third alternative and select software to enhance your creativity or expand your skills.

Portables give you extra hours in the day to try things you would never have time to pursue at your desk. If you think you would like to try one of the new data bases like Ansa Software Co.'s Paradox or a new spreadsheet like Javelin Software Corp.'s Javelin, run it on a portable until you determine whether it should become your new standard.

Today's laptops can run virtually any software developed for their desktop predecessors. Only a few packages using exotic copy-protection schemes will be difficult to transfer to the hard-disk or 3½-in. floppy-disk media. Market pressure is erasing this nuisance daily.

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CONTINUED FROM PAGE 70

Z-181, Toshiba T1100 Plus and Grid computers — is finding buyers who want less on their desk.

One thing that makes this alternative feasible is that most executives of this stripe do not require the plethora of add-on boards that are now available for personal computers. The exceptions are those executives who need access to a local-area network (LAN). Except for connections based on serial lines, LANs require a special board in the personal computer.

Such feature cards can be added to Compaq's bulky portables but cannot be added to most laptops.

> THE ILLUMINATED-screen hard-disk laptop provides battery power only as a convenience to capture an executive's spontaneous insights or to avoid searching for a power outlet during a one-hour sales call, rather than to deliver cord-free operation as an end in itself.

The Toshibas, the Data General DG One and some other vendors' systems can support PC cards via an external chassis. The external chassis is a desktop accessory and is not portable.

About the size of a pop-up toaster, this external chassis will provide an interface at a cost of about $1,000. It will also offer executives additional space on their desks. In an open office environment, one chassis can support a large number of travelers who are only occasionally working in the office.

The desk-bound executive may have to wait for the next generation of portables, which will undoubtedly close this personal computer-network gap.

In selecting a laptop or lightweight portable, key criteria to consider are power, screen technology and, except for the portable Macintoshes, IBM PC hardware compatibility.

Three keys

Power. At one end of the power scale are the systems that require external power. These personal computers are easy to carry but can only be used once they arrive at their destination. They include the Toshiba T3100, the suitcase-size Compaq portables, Sharp's PC-7000 and the portable Macintosh compatibles.

Product R&D, Inc. offers an adapter for automobile use as well as a one-hour battery option for machines including the Toshiba and the Dynamac. But not all of these systems are really designed to use on one's knees.

Battery-powered systems are grouped into those that use LCD displays and floppy disks to maximize running time and those that trade off running time in favor of more power-consumptive displays and hard disks. Toshiba's T1100 Plus will deliver almost eight hours of serious work before requiring a recharge. The PC Convertible is rated at about 10 hours — longer than the flight from New York to Rio.

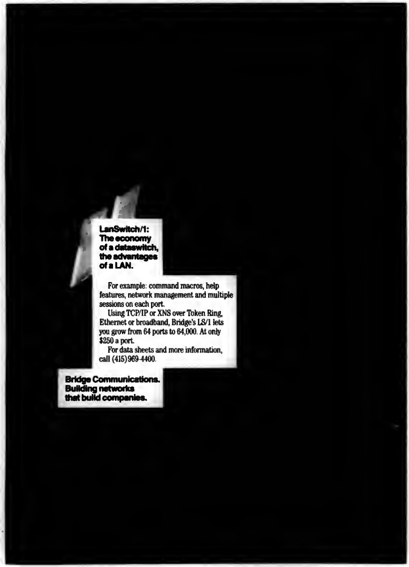
Toshiba T3100: *'The only real contender.'*

The HP Portable Plus is the long-distance winner at almost 20 hours of operation per charge. This machine is also the only portable that can accurately report the percentage of remaining power. All other laptops flash a few minutes' warning before they must shut down. This should allow just enough time to save an open file to disk. Backlit LCDs, plasma and electroluminescent displays all reduce battery life significantly but provide screens that can be read in semidarkness; internal hard disks also take a bite out of the battery. The combination of the two means the laptop will seldom run for more than an hour.

Given this drawback, the illuminated-screen hard-disk laptop provides battery power only as a convenience to capture an executive's spontaneous insights or to avoid searching for a power outlet during a one-hour sales call, rather than to deliver cord-free operation as an end in itself.

Only the Grid Case family minimizes this difficulty with a cartridge battery that can be snapped in like the clip in an automatic pistol.

Screen technology. For many people, the choice of screen technology — LCD, backlit LCD, plasma — is the most important consideration in choosing a laptop; it is also the most subjective. Choosing among LCD displays is a viewer-



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subjective decision; no two people will agree on which LCD is better, and some people find them altogether unacceptable. Backlit LCD screens are substantially brighter and more clear than regular LCD screens but use a lot of battery power. Plasma screens are as good as CRTs, but they do not lend themselves to portability.

> ONLY ONE vendor provides a walnut-size power adapter/recharger that can be thought of as portable. The typical laptop requires a power unit more than twice the size of a 12-oz. soda can. This adds significantly to the weight of the system.

Compatibility. Obtaining personal computer hardware compatibility is not the exciting quest it was last year; all of the systems mentioned — except the notebook computers like the Tandy 100 — are fully compatible. There are, however, some incompatibilities with desktop micros.

LCD and plasma displays are not totally equivalent to monitors, so tuning is required for some programs. For example, bold cannot be produced by driving the display harder, and some combinations, such as reverse video bright, show on these displays as black on black.

To be able to fit in a briefcase, all laptops compromise on keyboard layouts. Look for the ability to generate all PC key strokes even if it is necessary to press several keys to do so. Personal preference is the best guide in selecting a keyboard layout.

Today's typical MS-DOS portable provides 640K bytes of memory, two floppy disks — either 3½- or 5¼-in. format — a serial and parallel port, a red-green-blue port for an IBM Color Graphics Adapter-type desktop monitor and an optional built-in 300 or 1,200 bit/sec. modem.

Selecting among the many portables that are now available often boils down to investigating how the different vendors provide and expand these basic features — and at what price. It is not unusual to discover that two or three models are equally applicable and mutually compatible; this factor allows considerable purchasing flexibility.

The following are some examples of subtle engineering solutions with which different vendors have enhanced their products:

- The packaging of the PC Convertible and Zenith Z-181 completely encloses these machines' disk-drive slots when the top is closed — an excellent reliability feature. The DG One and Toshiba T3100 provide a protective cover for the rear connectors when the computer is closed for travel. Many laptops do not protect the disk-drive slots when the unit is closed. This leaves the units susceptible to impurities like crumbs and tobacco when slipped into a briefcase.
- The screen on the Toshiha T1100 Plus folds flat against the top of the unit. This allows additional viewing options when used in the lap and places the LCD screen out of the way when it is used with an external monitor.
- Grid packages its batteries as cartridges for easy replacement, whereas other vendors depend on nests of taped-together batteries that trail cables and are not meant to be replaced. Only the Grid design can reasonably cope with the realities of the power requirements of hard disks and the illuminated screens that many users require.
- Only Hewlett-Packard provides a walnut-size power adapter/recharger that can be thought of as portable. The typical laptop requires a power unit more than twice the size of a 12-oz. soda can. This adds significantly to the weight of the system.
- The PC Convertible preserves a running application before shutting the system down if the unit is closed without properly saving files to disk. The PC Convertible uses only negligible battery power in this state, while other laptops will run down at the same rate as if they were being used.
- Grid and HP provide popular programs, or users can put their own custom applications on read-only memory (ROM) cartridges. ROM-based software loads faster and cannot be lost or damaged while traveling, unless the entire computer is affected.
- Vendors such as IBM, Grid, HP and DG, which are oriented to supporting the corporate buyer, will send a sales team to service an account. This expertise can be valuable during the development of a pilot program.
- Other vendors, such as Toshiba, Sharp and NEC, operate principally through value-added resellers and dealers; excellent retail commodity prices may be achieved with a little aggressive purchasing.

Laptop and portable computers are remarkably like cameras — you must always carry them if you ever want to have them when you need them.

So, whether you are looking for a single system for yourself or enough units to automate hundreds of professionals within your organization, remember these rules:

If you don't enjoy it, you won't use it.
If it's too heavy, you won't carry it.
If it isn't with you, you won't use it.
If you've left a critical piece of it behind, it's worthless. ●

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Shut out of the boardroom

Barred from strategy sessions? Then your good ideas will fall like cold water on newly laid plans

BY BOB HILTON

The importance of financial planning, marketing planning and capital/equipment planning has long been accepted by top management as a natural extension of, or better yet an integral aspect of, the first level of the strategic planning process. For example, the top financial executive of a company is usually present when critical strategic objectives and actions are being considered.

However, in too many cases, information systems issues and human resources issues have not been considered as influencing factors in strategic planning but rather as being *influenced by* decisions coming from that process.

It is assumed that the right people can be hired and trained or that information to support an activity will be adequate. But to be effective, strategic planning must be a multilevel process.

It starts with top management concerns about overall mission. A logical second tier includes specialized planning for the major types of resources most organizations manage. Usually these are money, products and services, capital and equipment, people and finally information — the youngest member of the team.

Planning at this second level should be aimed upward toward support of the corporate mission and laterally to coordinate with the other specialized resource-management plans.

Yet managers of MIS or human resources typically are more disconnected from first-level strategic planning and from top management than are their counterparts in marketing and finance. And ways to derive strategic advantages from innovations in these two areas are still seldom discussed.

Not only are both functions relatively new at the executive-suite level, but both MIS and human resource departments carry a lot of historical baggage. In MIS, this reputation is typified by managers' roots in accounting and control systems, special jargon and a hardware orientation.

In human resources, there is the temptation for managers to get lost in the day-to-day administrative jungle of hiring, terminations and payroll.

Thus the perception lingers that MIS is full of "techies" and that human resources has more than its share of has-beens and "people people."

Of course, progress is being made, especially in companies in which dynamic business managers head up these functions. But organizational cultures change very slowly. The percentage of companies with human resources or information systems executives on a par with the top finance or marketing executives remains small.

In many cases, the fault lies with the managers themselves. Their vision of their role is still too limited. In other cases, the problem stems from the chief executive officer's failing to attach a sense of importance to these functions.

In organizations in which the latter is true, we typically find managers in MIS and human resources resorting to second-guessing top management. I know. For some time, I was responsible for business systems planning for a top U.S. firm, and we in MIS were not apprised of many of the strategic objectives of the company. When we were apprised, it came too late for our input. Likewise, human resources managers were uninformed.

At that late date, it is always hard for human resources and MIS managers to express concern over strategic objectives without it looking like they either want to reopen the case or are throwing cold water on plans already made. Many reasons explain this lack of timely communication, but ample evidence indicates a real weak link.

Opportunities abound

So how do managers carry out adequate strategic planning in MIS and human resources from their stepchild perspective?

Not very well, I am afraid. Typically, the human resources and MIS planning dialogue under these circumstances is initiated, of necessity, from the bottom up rather than from the top down. There is a lot of running ideas up the flagpole to see who salutes, often to the consternation of top management.

As I consult today with top management in the development of strategic objectives and action plans, I am amazed at how much opportunity I see for MIS and human resources to assist and to offer real improvements to the plan before it is finalized.

Recently, working with a client company's top management, we identified 48 strategic actions that the group wanted to initiate. In almost all of the action plans there was a needed level of support from both MIS and human resources — often the critical element.

How different it can be when MIS and human resources management can take a position of saying up front to top management, "We can help you accomplish that strategy." In such cases, the resulting functional plans and projects are based around business goals, around something top management wants very badly — not what MIS or human resources managers think might be nice or might be needed. As such, the resulting second-level plans are truly strategic and will be strongly supported by top management.

It is time these functions are

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JON MCINTOSH

Hilton is president of Systems Planning Institute, Inc., Atlanta, specializing in business planning, information systems planning and human resources.

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- **MIS fights its way into the executive suite**
- **Are you always the last to know?**
- **Progress slowed by leftover stereotypes**

no longer treated as second fiddles. They need to be made an integral part of the overall planning. In today's information- and service-oriented world, these two functions need to be carrying more of the melody, not chiming in now and then.

What you are up against

How can MIS and human resources executives help make that happen?

It will not be easy. After all, you are up against basic cultural norms: how business is and has been conducted for many years. Like those in other maturing professions, you will have to fight your way to the top.

A good starting place is for you and your department to expand your vision of your role. Assume that senior managers want and will accept support for what they want to do, not necessarily for what you want to do. Realize that your departments exist to help your company achieve its overall strategic objectives.

Ask for a written list of the strategic objectives and work toward greater involvement in the strategic planning process. Help establish a better process if a weak structure is now in place. Most top managers are willing to listen if you are sincere and if they think you are trying to understand things from their perspective.

If you are a human resources executive, realize the shortsightedness of being too people-oriented (toward individual mission) or too company-oriented (toward corporate mission). Some human resources managers may perceive their role as representing the employees, whereas others may assume that getting the most out of the employees for the sake of the bottom line is their role. The strongest organizations (and the only viable ones in the long run) are those that create a balance between the two.

Balance implies opportunities for input and dialogue between an individual and the organization as well as an understanding of and agreement with corporate strategic objectives. Consider the possibility that the highest goal of human resource management may be to bring the collective individual missions and values of employees into harmony with the organization's mission. This goal implies a vision of the human resources function that allows some ability to influence both sides of the equation — strong business- and people-oriented leadership.

If your position has evolved out of moves within your own functional area, then consider the possibility that you may not fully appreciate others' — especially top management's — point of view. Make an effort to get out of this mental box.

Of two of the best systems analysts I have known, one was formerly an assistant traffic department manager and the other was a former architect. Ironically, many existing human resources functions could be improved with the inclusion of a manager with a systems orientation, and many MIS functions could profit by a large dose of human resources management know-how.

Spirit of an entrepreneur

Perhaps the simplest next step is to concentrate on finding out what the CEO and other top executives want. Listen and try to find ways of committing your resources to satisfy those needs. Assuming you now know what the strategic objectives are for your company, you may consider proposing or even funding only those new projects you see as clearly linked to these strategic needs. Force this kind of thinking to occur with those below you.

> THE HIGHEST goal of human resource management may be to bring the collective individual missions and values of employees into harmony with the organization's mission.

Run your function like a business. Market your services as if other managers were paying for them. Approach your clients with a standard of excellence designed to keep their respect and support. After 23 years in corporate staff or service functions, nothing changed my vision like running my own firm for the last four years. It is a shame that corporations cannot instill this entrepreneurial thinking more thoroughly at all management levels and early in one's career.

Ideally, CEOs should think as generalists, not as specialists, when they visualize these top-level positions. We recently reviewed some advertisements for top MIS positions. The ads reflect more emphasis on advanced degrees in computer science and experience with particular types of technology than on proven management and planning experience.

These ads also reflect a certain expectation for people who hold these positions. As an analogy, suppose I applied for a top-level marketing job in a company, and the advertisement stressed that I should preferably have an advanced degree in marketing and be familiar with several kinds of techniques but made little or no reference to proven management performance. I would be suspicious.

The ultimate responsibility for forging links between these two key resource-management areas and top management rests with the CEO. However, much of the initiative can come from a new affirmation of mission and vision by those now responsible for MIS and human resources. If greater levels of harmony are not achieved, both the company and the functional areas will increasingly suffer. ●

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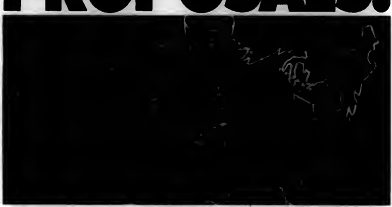

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MANAGEMENT

TAKING CHARGE

Lance B. Eliot

The strategic expert system

An expert system is a kind of technology, and discussions of expert systems tend to focus on technological issues. But the adoption of such a system is an organizational issue and, as such, it requires consideration of its impact on a firm's production processes, services and social structure.

Because most of the attention given expert systems to date has been on technological issues rather than organizational ones, we understand very little about managing them; meanwhile, the competitive edge offered by expert systems is hidden among a clamoring crowd of technologists.

But expert systems are an important topic for general managers. Let's consider the strategic opportunities that expert systems make possible.

- **Changing the nature of competition.** A building supplier developed an expert system that changed the nature of its competitive stance. Customers consulted the supplier's housing specialists to determine the kinds of materials they needed for a particular project. A housing specialist would interview a customer and produce a schedule of supplies. The company used an expert system to help the specialists draw up supply schedules, resulting in more

Continued on page 78

Managing technology portfolios

BY JANET FIDERIO
CW STAFF

INTERVIEW

Gary Biddle

Gary Biddle, vice-president of MIS for American Standard, Inc., has his hands full. He sets controls and standards for the decentralized information organizations of the company's three diverse worldwide business groups.

Sound simple? Well, think again. American Standard is a $3 billion company with over half its sales coming from outside the U.S. Its business groups, which provide plumbing products, air-conditioners and railroad services, are divided into strategic business units. The units, with sales of between $20 million and $600 million, have their own information services organizations and do their own development programming.

Biddle regularly deals with nearly 30 of these groups located around the world.

He also manages centralized MIS functions. In the U.S., American Standard operates a nationwide communications network, from which the operating units buy time, and three computer processing centers that are run like utilities.

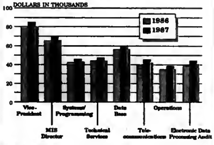
To maintain an integrated environment among American Standard's MIS operations, Biddle and a small group of professionals at headquarters promote a corporate architecture. They also promote a system called business portfolio management. This system ensures that MIS units manage technology from an investment standpoint in four areas: the traditional MIS core systems and applications, PC-related expenditures, communications technology and factory automation. Biddle's group is also responsible for tracking new

Continued on page 79

Data View

MIS management

Average executive salaries, large-scale installations



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CW CHART

Former execs try consulting

BY ALAN J. RYAN
CW STAFF

When Gene Stein lost his job through a corporate restructuring for the second time, he decided he would become master of his own destiny by working as an independent consultant. The former vice-president for data processing at Warner Leisure, Inc. says he makes much more money now and does not have to deal with corporate politics, which he calls "a big plus."

However, J. Robert Riggs, who took early retirement as vice-president of information systems at Dresser Industries,

Continued on page 81

Banks make a deal for data center

BY DAVID A. LUDLUM
CW STAFF

MILWAUKEE — First Wisconsin National Bank of Milwaukee has agreed to expand its remote data processing operations by purchasing a data center from an Illinois bank and negotiating further expansion of its services.

First Wisconsin, a subsidiary of the $7 billion First Wisconsin Corp., the largest bank holding company in Wisconsin, has agreed to buy a data center from State Bank of Freeport, lead bank of Northwest Illinois Bancorp, Inc., First Wisconsin said.

First Wisconsin, which has done data processing for other banks for 24 years and currently services about 200 banks in Wisconsin, Michigan, Iowa and Illinois, is also negotiating a deal to service a bank in St. Paul, Minn., said Rod Jaeger, the bank's manager of data network services.

The Illinois data center, which would become the sixth remote data processing facility operated by First Wisconsin, handles processing for two banks owned by Northwest Illinois Bancorp as well as 21 others in northwest Illinois.

James Shankland, vice-president of marketing at State Bank of Freeport, said First Wisconsin can provide the center's services more effectively due to its expertise and economies of scale. State Bank of Freeport will benefit from access to First Wisconsin's technology, he added. "The

Continued on page 79

MIS execs take reins at Ashton-Tate, Midland Bank, Pennzoil

BY DAVID A. LUDLUM
CW STAFF

There is nothing ignominious about being manager of corporate systems for a company whose fortune is tied to the microcomputer revolution and whose chairman has questioned the clout of MIS management.

That is the view of **Richard F. Di Giovanni**, who has been promoted to vice-president of MIS at **Ashton-Tate**, the Torrance, Calif., software maker. He had been the company's director of MIS.

In a recent interview with *Computerworld* editors, Ashton-Tate Chairman Edward M. Esber Jr. suggested users may usurp some of the purchasing decisions traditionally made by MIS managers.

Di Giovanni said such remarks likely refer to managers seeking to retain MIS's total control of information systems. In his view, mainframes may become "mass storers of data" drawn on by users' personal computers. "I want to be able to give that information out and allow them to do their own analysis," he said. He advocates "a good mix" of control and access and said there is "a real marriage" of PCs and IBM System/38s at Ashton-Tate.

Di Giovanni, 42, is also acting general manager of Ashton-Tate's support services division, a line position that he said fulfills a personal goal of managing responsibility for profit and loss. He said that suits him well, with his background providing service through an MIS organization. Before joining Ashton-Tate as MIS director in 1985, Di Giovanni spent 20 years with movie studio information systems organizations.

The film and PC software industries are similar — both are distribution businesses with success hinging on short product cycles, Di Giovanni noted. "The real difference is that this is growing so fast," he said. "What you have to do in an environment like this is make decisions a lot more quickly."

Richard Di Giovanni

After crossing the Atlantic and working with two U.S. consulting firms in London, **H. Eugene Lockart** has settled in as chief executive of information technology at **Midland Bank Group**, one of Britain's leading banking companies.

Lockart, previously a managing partner with First Manhattan Consulting Group, also has been appointed a member of Midland's group executive committee.

Like Britain's four other clearing banks, Midland has automated branches throughout the country, a nationwide data network on which it sells time and a reputation for aggressive use of technology.

Midland also has interests in

Continued on page 82

Strategic

FROM PAGE 77

complete schedules with fewer errors.

The bottom line was that business increased from both existing customers and new ones. Competitors had to scramble to try to meet new expectations. Today, many of them have a similar form of automation.

The expert system provided a competitive advantage — albeit a temporary one — and then escalated the nature of the competition.

• **Raising entry barriers.** The building supplier's expert system also increased the barriers to entry for new competitors by requiring them to have comparable automation.

A similar trend has begun in corporate tax planning. An expert system for tax planning has allowed at least one accounting firm to save time and give better advice to corporate clients. Clients with complex tax planning needs are beginning to seek out tax advisers with the new technology. Currently, the relative cost of developing such a specialized system is quite high. In the near future, it is likely that tax-oriented expert systems may become significant marketing and work producing tools. Again, such an example illustrates how an expert system hurdle must be overcome by new entrants to an area of business.

• **Increasing switching costs.** A company developed a hospital laboratory instrument that incorporated an expert system for helping users diagnose various inflammatory conditions in patients. After using the instrument for several months, many hospitals began to shape their work processes around its behavior. For example, they revised lab test forms to reflect the responses from the instrument and its embedded expert system.

Next, the company developed other instruments that directly tied into the inflammatory expert system. Hospitals with the first instrument happily bought into the line of products. Soon, the hospitals were locked into a chain of sensible purchases that narrowed their own abilities to switch suppliers. The decision to replace one of the instruments in the chain then required finding either a mimic — and none were available — or replacing an entire sequence of instruments. The expert system helped bind the company's customers and increase their switching costs.

• **Changing power relationships.** A telephone company developed an expert system that helped cable analysts with maintenance tasks. If a telephone cable needed maintenance, the expert system would provide advice on how to make repairs. Furthermore, the system would piece together numerous maintenance activities and could anticipate future maintenance needs. The system was used to guide preventive maintenance and suggest where to replace or recondition existing cables.

Eventually, the telephone company found it had amassed a substantial knowledge base concerning cables and their reliability. Negotiations with cable suppliers took on a different cast. The telephone company was in a position to play a stronger role in requiring the suppliers to meet certain specifications. It could also argue more effectively with the public utilities commission during rate-change debates.

Even the customer relationship was changed, since the telephone company now had a way of selling services at an earlier stage — that is, selling preventive maintenance rather than repairs — and billing was improved through the levying of specific charges rather than estimated annual fees.

• **Developing new business.** A law firm developed an in-house expert system that improved interaction with a legal data base. The firm was approached by other law firms not in direct competition with it and asked if the system could be shared with outsiders. Gradually, the law firm developed a new service through expert systems and legal data bases. Today, the firm sells the expert system and related software packages. It

Continued on page 79

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Managing

CONTINUED FROM PAGE 77

technologies and recommending their use.

A 30-year veteran of American Standard, Biddle worked in the manufacturing and operations side of the business for 14 years before moving over to information systems. He sees himself primarily as a business person with a specialty in technology. His goal at American Standard is to act as a catalyst for change and help business units apply new technologies.

Explain your method of breaking new technology into business portfolios.

Back in 1983, [management consulting firm] Nolan, Norton & Co. proposed that with the introduction of micro technology, there would be niche types of products coming to the market that would then attract dollars and expenditures {by] the operating units. Computer-aided design and manufacturing and robotics are other examples of technologies that were coming in.

This was important because in our industry, surveys always said that the average [information technology] expenditures per year per manufacturing company were 1.5% to 1.7% of gross sales.

When we took in all of the new technologies, which tended to then create expenditures that would fall outside of the information services budgeting process, what we started to see were expenditures as high as seven times what we normally would have seen in an information services budget, forecasted by the end of the 1990s.

Now this meant that if we could collect all those costs, a manufacturing company that was trying to stay progressive would be spending 5% of gross sales a year for information technology instead of 1.5% to 1.7%. If that's true, then there has to be a return-on-investment for that expenditure.

How did you encourage operating units to estimate return-on-investment figures?

What we did was to look at these new technologies as business portfolios. We developed a framework or a structure where we named the old traditional core of business applications "the institutional portfolio." We looked at the personal computer and all the technologies and software that have come out around the personal computer and we named that the "professional support services portfolio."

Communications became a third portfolio, which was named "external support services." The fourth portfolio we coined "factory automation," since we are a manufacturing company.

Next, we had to figure out how to distribute this hypothetical 5% of gross sales across those four portfolios. One of the things we told the operating units was,

Continued on page 80

Banks

CONTINUED FROM PAGE 77

resources they have are so much greater than ours. They are fully committed to being in the data processing business and we are not," Shankland said.

Daniel F. Heine, president of the State Bank of Freeport, said in a statement that the sale will let the bank focus on other aspects of its business. He noted that bank automation has become increasingly complex, in part due to deregulation.

The banks did not disclose terms of the transaction, which is effective May 31.

First Wisconsin hopes to maintain all the data center's clients and "expand that territory substantially," said Harvey Keller, a First Wisconsin customer service executive. He called the external data processing services "a significant piece of business" for First Wisconsin Corp.

First Wisconsin has developed systems for teller operations, on-line preparation of deposit documents and on-line signature verification, the bank's manager of data network services said.

Strategic

CONTINUED FROM PAGE 78

branched out into a new business.

Clearly then, expert systems can be important for general management. An expert system can change the nature of competition, raise barriers to entry, increase switching costs and generate new lines of business.

What makes expert systems so special? Can't other forms of information systems achieve the same kinds of strategic advantages? The answer is yes.

Expert systems tend to focus on issues of effectiveness. An expert system is built to capture and distribute limited or costly knowledge. Such knowledge may be awkward to share, in danger of disappearing through the retirement of experienced specialists or difficult to replace because of high demand for skilled labor.

Expert systems merely recognize the essential nature of knowledge as a valuable corporate resource. While a transaction-oriented processing system might stumble onto a gold mine of corporate knowledge, an expert system is supposed to seek it out and leverage it.

Eliot is director of the Expert Systems Laboratory at the University of Southern California's Institute of Safety and Systems Management.

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Managing

CONTINUED FROM PAGE 79

"We know you are spending a lot of money on PCs, so why don't you look at personal computing as a tool to increase knowledge-worker productivity? If we do so, it's a separate category that you should have strategies on within your operating unit as to how you're going to handle those expenditures."

Then we did the same thing with factory automation and with the external support services.

After all, how do you use communications into the supplier and the customer channels of distribution to make it easier for them to do business with you?

> "WHEN we took in all the new technologies, we started to see information services expenditures as high as seven times what we normally saw."
>
> GARY BIDDLE
> AMERICAN STANDARD, INC.

You must have delved into electronic data interchange [EDI] in the communications arena, then?
Yes, we have. We have a major program in place so we can explore this whole idea of EDI.

Our first experiences with EDI have come out of the transportation industry, and EDI has been very strong in that arena. With that experience as our learning curve, we're now trying to see how we can apply EDI to the other businesses that we're in.

One of the points that we try to make to our operating units' management is that they can look at these business portfolios and that we will give them a generic model to work with. They can see what fits best for their business strategies over two or three years. But if they stay within our corporate architecture, they will not have to be concerned with the integration issue.

How can you ensure that integration won't be a problem?
Because our computing architecture has addressed the integration issue, and it allows us then to move data around without concerning ourselves about connectivity.

You can maintain similar architectures throughout all of your subsidiaries?
If our operating units work within our guidelines, integration is not an issue.

We also stress to the operating units that if they stay within the business portfolio concept of management, we can relieve the external and internal pressures that we're all faced with, because we have developed processes, and at the core of those processes is the computing architecture model. The model is supported by our portfolio investment process.

Can you explain the portfolio investment process?
Basically, what we have is a core that has four architectures: communications, data, application and hardware/software. The core is then layered against the four business portfolios: institutional, professional, external and factory automation. That's the core. What we've got to do now is manage it. The portfolio investment process is a management tool, our way of managing information technology.

We stress to the operating units that they should ask themselves these questions: "What are our spending levels against the functional areas of our business within these four business portfolios? What are the ages of the applications that are in those business portfolios?" We also ask them to track their maintenance costs, so they know that applications have life cycles just like products do, because you need to know when you should start reinvesting and replacing those assets.

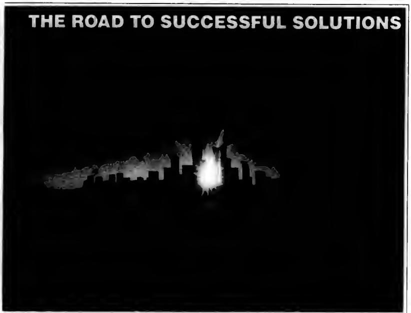
That is managing the portfolios from an investment standpoint. Answering those questions also makes sure, then, that management understands that where they're spending their money is really where they should be spending their money from a strategic alignment standpoint.

So do you serve then as a champion of these programs?
What we're giving them is a methodology of understanding as to how to manage it. And then we ask them to make sure that they're achieving strategic alignment with those programs.

We also have what we call an information technology development process, where we have a small corporate organization that tracks the introduction of new technologies and analyzes what is happening in the marketplace with that technology.

If we think we have found an application, then it passes on into an evaluation, and we do a white paper and guidelines and standards and introduce it to the operating units worldwide.

We tell the units that here is a potential technology that could be used in their businesses and we'll be glad to help them to understand the technology and some ideas that we've formulated as to how it could be used. So then we're into the technology transfer process.



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Former execs

CONTINUED FROM PAGE 77

Inc., enjoys the freedom of independent consulting but finds it has not been financially attractive in the early years. It is tough competing with the big firms, be says.

Mergers, corporate restructuring and early retirements have left numerous high-level executives out of a job, and many of them are deciding to put their know-how to work as independent consultants.

The position is appealing. The consultants work for themselves, make their own hours and can elect to say "no" to a client. But consulting has its drawbacks, too. Not everyone likes it, not everyone can make money at it and the competition can be fierce.

Senior-level executives who become independent consultants often can satisfy restrictions, which were promulgated by last year's tax reform act, on who can do such work, according to Kevin Carey, managing director of H. R. Consultants Resource in Rutherford, N.J. They are more likely to work irregularly on part-time projects, ofteo because they have substantial savings or pension income.

'Don't want a boss'

Many former executives plunge into consulting because they do not want to work in a structured environment, says Carole Schwartz, president of consulting firm McCabe & Schwartz, Inc. in New York. "People come to a point in their lives where they don't want a boss any more," she says.

Consulting can also be a lonely field, Schwartz adds. Executives usually work with others, while being a consultant often means being on one's own. The job may require excessive hours and travel, constant pressure and long periods away from one's family to make it work, Schwartz says.

Consultants may fail because they either cannot do the work or are not able to handle the business aspect of the venture, according to Schwartz. "Consultants sell, and they have to be happy with that role," she says. "Rejection is an integral part of this whole thing, and a lot of people can't handle rejection."

And while consulting can be lucrative, some consultants say it takes a few years to become established and, by that time, many are ready to retire for good.

Billion-dollar market

The consulting market is worth billions of dollars and is growing rapidly, according to H. R. Consultants Resource's Carey.

Many companies are scaling back, but they have specific projects they want done. Rather than hiring an employee and later implementing a layoff with severance pay, the corporation can contract the work to a consultant.

Carey, whose firm has a bank of 12,000 consultants across the country, said be started it after seeing many consultants with less experience than he had. "Essentially, it was not normal to have a consultant come in to perform a project for you who had many years of experience," he says. "Many, many more [middle and top managers] were becoming available who were excellent people."

Stein, 42, of Garnerville, N.Y., went to work as an independent consultant in 1984, after Warner Communications, Inc. shut down the Rutherford subsidiary where be worked.

"I decided to go out on my own. I wrote a couple of letters and got a few small contracts," Stein says. Then he arranged to find some work through H. R. Consultants, which he says lifts some of the burden of marketing from him, letting him concentrate on his projects.

Stein's contracts have included a year-long effort consuming two to four days a month and a four-month undertaking. He has implemented a multiwarehouse distribution system and a short-term project selecting a point-of-sale system.

Stein says the drawbacks to his profession include getting a big tax bill at the end of the year and having to provide his own health-care and pension plans. There are also slow periods, and it helps that his wife has a career, he says. "But you're making much more money than you'd make at a salary," he says, adding that consulting also lets him avoids corpo-rate politics.

Riggs, however, says that he has found that the percentage of his time that is billable has not been high and that it takes a long time for an initial contact to mature into a contract. "Financially, I have not found it to be attractive in the early years," says Riggs, 59, of Dallas, who began consulting after his retirement about 18 months ago.

Riggs says that after he opted for early retirement, he wanted something to do and was drawn to consulting. "You're your own boss, and you're responsible for your own bargaining and own performance," be says. He does not work through an agency but said he might opt to do so.

Riggs says a major drawback to consulting is s lack of credibility in competing with the large, nationally known firms and advises others who wish to become consultants to "have a good, solid income base to begin with."

Stein suggests would-be consultants specialize. "It's really the age of specialization. You can't go out and be a consultant and say 'I do everything,'" be explains. Companies hiring contract labor are spending a lot of money doing so, and they do not want to spend time training the consultant. "They also expect the job to be done quicker, and they expect it to be done correctly," Stein adds.

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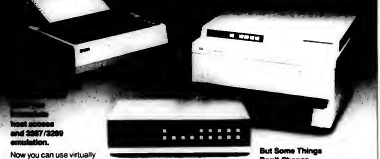

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Execs take reins

CONTINUED FROM PAGE 77

investment banking and securities trading through its Samuel Montagu subsidiary and foreign exposure through ownership of banks throughout France and West Germany.

Lockart, 37, graduated from the University of Virginia and worked with Arthur Anderson & Co. in Washington, D.C.

He was also employed by Nolan, Norton & Co. in Boston and London, where he was managing principal; C. T. Bowring & Co.; and First Manhattan.

Keith A. Eaton has been named vice-president of MIS at **Pennzoil Co.**, with responsibility for the information network, systems services, MIS and user support and planning and administration.

Eaton succeeds Jerome Ferguson, who retired.

He joined Pennzoil last year as director of MIS and user support services, leaving **Kerr-McGee Corp.**, where he was director of systems development.

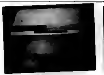
Eaton said his chief goal will be completing the final year of Pennzoil's three-year information plan, which focuses on the installation of several financial systems.

Carter Hawley Hale Information Services has appointed **Jerome E. Kenan** vice-president of development and has named **Paul A. Burrows** vice-president of computing.

Kenan, formerly of Transamerica Corp. and Rockwell International Corp., is responsible for 31 production systems that support merchandising, credit, finance and human resources for Carter Hawley Hale Stores, Inc.

Burrows, a former Marine pilot and NCR Corp. salesman who succeeds Kenan, heads the company's data center, with responsibility for systems software, capacity panning, disaster recovery and data base production support.

Carter Hawley Hale Stores operates The Broadway-Southern California, The Broadway-Southwest, Emporium Capwell Co., Thalhimers, Weinstock's, Bergdorf Goodman, Inc., Contempo Casuals and Neiman-Marcus.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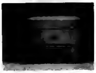
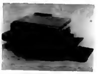

Apple LaserWriter/LaserWriter Plus

DEC PrintServer 40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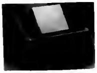
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Seventh Annual Computer Operations Conference. New Orleans, March 2-5 — Contact: Association for Computer Operations Management, Suite 201, 11501 Brookhurst, Garden Grove, Calif. 92640.

Eighth Annual Conference on EDP Performance and Capacity Management. Phoenix, March 2-6 — Contact: Applied Computer Research, Inc., P.O. Box 9280, Phoenix, Ariz. 85068.

Corporate Electronic Publishing Systems Show and Conference. Chicago, March 3-5 — Contact: Cahners Exposition Group, 999 Summer St., Stamford, Conn. 06905.

DEXPO Europe '87. London, March 3-5 — Contact: Expoconsul, 3 Independence Way, Princeton, N.J. 08540.

Securicom '87. Paris, March 4-6 — Contact: Securicom-Sedep, 8 rue de la Michodiere, 75002 Paris, France.

Taxation of Intellectual Property. Chicago, March 5-6 — Contact: Deborah Gordon Public Relations, Inc., 320 N. Michigan Ave., Chicago, Ill. 60601.

MARCH 8-14

Cullinet Applications and End-User Computing Conference. Dallas, March 8-10 — Contact: Cullinet Software, Inc., 400 Blue Hill Drive, Westwood, Mass. 02090.

Spring 1987 Conference of the North American Honeywell Users Association. Charleston, S.C., March 8-13 — Contact: Lester T. Pacca, NAHU, Inc., P.O. Box 2037, Willingboro, N.J. 08046.

Automated Manufacturing: Computers, Communications and Controls in the Factory. St. Petersburg Beach, Fla., March 9-10 — Contact: Yvonne Chism, Frost & Sullivan, Inc., 106 Fulton St., New York, N.Y. 10038.

New Technologies. Beverly Hills, Calif., March 9-10 — Contact: Seybold Seminars, 6922 Wildlife Road, Malibu, Calif. 90265.

CAD/CAM, CAE Executive Workshops '87. Cambridge, Mass., March 9-10 — Contact: Daratech, Inc., 16 Myrtle Ave., Cambridge, Mass. 02138.

Electronic Banking: The Challenges of Tomorrow's Bank Within Yesterday's Legal Framework. Brussels, March 9-10 — Contact: Conference Office Brussels, 19 rue de l'Orme, B-1040 Brussels.

11th Annual BRS User Meeting. Kansas City, Mo., March 9-10 — Contact: BRS Information Technologies, 1200 Route 7, Latham, N.Y. 12110.

COMPUTER INDUSTRY

INDUSTRY INSIGHT

Efrem G. Mallach

Discarding fad as fiction

In 1960 it was Hula Hoops. The 1970s saw Pet Rocks and Rubik's Cube. Then we had Cabbage Patch dolls and Trivial Pursuit.

Fads are harmless when you're buying Christmas presents. The short-term benefits of satisfying your child, or yourself, are substantial. The long-term cost of a poor decision is minimal.

Fads are just as common in selecting computer systems. We might like to think we make rational decisions. But we don't. We can't. We're as captive to our emotions at 10 a.m. on Wednesday as we are at 10 p.m. on Saturday.

Most of us know this. We take precautions. We read research reports, subscribe to reference services and engage consultants. But there is the rub. Our advisors are human, too.

Vendor fads among reference services and consultants are every bit as extreme as fads in the toy business. They come and go as quickly and with as little reason. But computer selection fads leave a trail of poor recommendations and wrong purchase decisions in their wake.

For instance, look at Digital Equipment Corp. DEC is a fine firm with excellent products. Industry watchers praise it to the skies with good reason. But a few short years ago, the same industry watchers put DEC down for its "engineering focus," "confused management" and "overtechnical sales reps."

What has changed? Not the products, which have improved at about the same rate as everyone else's and were good in 1984, also. Not the management. Not the sales reps. Just the faddishness. DEC is "in" today.

A few quarters of good financial numbers, while the rest of the industry suffers through hard times, and suddenly everything else about the firm be-

Continued on page 94

Uccel, VM, Sterling profits strong

BY CLINTON WILDER
CW STAFF

Illustrating the relative health of the IBM mainframe systems software industry, Uccel Corp., VM Software, Inc. and Sterling Software, Inc. recently reported strong year-end profit growth.

Dallas-based Uccel, which in 1986 sold off several unrelated operations while beefing up its systems software business, said fourth-quarter profit from operations jumped 42% to $7.7 million, or 45 cents per share. Revenue grew 7% to $42.3 million.

For the year, Uccel neared the $150 million revenue mark, reporting sales of $141.6 million, up from $126.8 million in 1985. Earnings, not including an extraordinary credit, rose 47% to $17.2 million, or $1.02 per share.

Uccel said $9.8 million of its 1986 revenue came from businesses that had been divested, including a turnkey systems division, a computing services unit and three software operations. The businesses, although barely profitable, accounted for half of Uccel's revenue in 1985.

In the fourth quarter, Uccel acquired six small systems software companies for a total of approximately $60 million. Chairman Gregory J. Liemandt said the company shipped a record level of systems software products in December.

Reston, Va.-based VM Software reported that 1986 revenue grew 50% to $27 million, while earnings jumped 57% to $4.9 million, or 77 cents per share.

In 1985, the firm earned $3.1 million, or 53 cents per share, on sales of $18 million.

Fourth-quarter growth was roughly comparable with that of the full year. VM Software's profit increased 58% to $2.5 million, or 39 cents per share, on revenue that rose 64% to $10.4 million.

Sterling Software in Dallas more than doubled its profit in the first quarter ended Dec. 31, while reporting substantially lower revenue due to divestitures.

Earnings were $1.9 million, or 19 cents per share, compared with $890,000, or 16 cents per share, in the year-earlier period.

The average shares outstanding increased from 4.9 million to 9 million.

Sales dropped from $69.5 million to $45.3 million.

Japan ignoring chip trade accord

BY JAMES A. MARTIN
CW STAFF

The U.S.-Japan trade accord designed to prevent the Japanese from predatory pricing and semiconductor chip dumping practices in the U.S. is clearly not working, analysts and chip manufacturers agree.

However, until more long-term steps can be taken to correct the problem, they say, it is better than nothing at all.

The controversial trade accord, reached last July, made headlines again recently when the Semiconductor Industry Association (SIA) called for the Reagan administration to impose trade measures against the Japanese.

Claims market closed

The SIA claimed that the Japanese semiconductor industry has not opened its semiconductor market sufficiently to the U.S. and that below-cost pricing of dynamic random-access memory (RAM) chips has continued despite the agreement.

The problem does not lie with the agreement but rather with its enforcement, according to industry observers.

The main value of the trade accord is that it acted as a necessary "two-by-four that told the Japanese that the U.S. will react" to unfair competitive practices, according to T. J. Rogers.

Rogers is president and chief executive officer of Cypress Semiconductor Corp. in San Jose, Calif.

"The agreement was valuable in that it told the Japanese that if they can have a government policy targeting the U.S. industry, then we can have one targeting theirs, too," Rogers says.

"We need to help them realize that in a trade war, neither Japan nor America would win," he continues.

'Significant achievement'

"It would be a mistake to dismiss the trade accords as a mistake," says Bruce Entin, spokesman for LSI Logic Corp. in Milpitas, Calif. "It was a significant achievement in that we hadn't had one like it before. But Japan will respond only to actions, not words."

In response to the SIA's complaint, Japan's Ministry of International Trade and Industry (MITI) has urged Japanese chip firms to adhere to the agreement and buy more U.S. semiconductor products to avoid a trade conflict.

But finger-pointing by the Japanese government will do little about solving the problem.

Continued on page 87

World semiconductor market share, 1986

Hitachi Ltd., Toshiba Corp. displace U.S. vendors in top three

1986 Rank	1985 Rank	Company	1986 Semiconductor revenue (in millions of dollars)
1	1	NEC Corp.	$ 2,638
2	4	Hitachi	2,305
3	5	Toshiba	2,261
4	2	Motorola, Inc.	2,025
5	3	Texas Instruments, Inc.	1,820
6	6	Philips-Signetics	1,356
7	7	Fujitsu Ltd.	1,310
8	10	Matsushita	1,233
9	11	Mitsubishi Electronic Corp.	1,177
10	8	Intel Corp.	991
11	9	National Semiconductor Corp.	990
12	12	Advanced Micro Devices, Inc.	629
13	14	Sanyo Corp.	585
14	13	Fairchild Semiconductor Corp.	510
15	22	Sony Corp.	475

INFORMATION PROVIDED BY DATAQUEST INC

Memorex: Life as a distributor

BY ALAN ALPER
CW STAFF

NEW YORK — When a group of Memorex Corp.'s European executives struck a deal last fall with parent company Burroughs Corp. to purchase the peripherals subsidiary and move its headquarters from Santa Clara, Calif., to London, they hoped the leveraged buyout would provide the firm with a new lease on life.

Analysts, however, questioned their sanity.

Could the new owners transform Memorex into a healthy, thriving business after years of marginal profits, some losses and an inability to stay current with peripherals technology? More important, how could a London-based concern maintain strong relations with U.S. customers?

DASD concerns

Another nagging concern was a dependency on its former parent — operating under the name Unisys Corp. since its merger with Sperry Corp. — for IBM plug-compatible disk drives. Analysts wondered whether the firm could continue to compete without manufacturing its own direct-access storage devices (DASD).

The "new" Memorex has attempted to answer all the uncertainty by stressing the advantages of operating as a distributor. Even before the leveraged buyout [CW, Nov. 10], many of the company's IBM-compatible terminals and controllers were already made by other vendors.

"We can do a more effective job as a distributor because we are not tied down to a particular type of R&D or factory," said Sergio Mazza, president of Memorex's U.S. sales and services operations, in a recent interview. Mazza pointed out that half of the firm's $917 million in 1986 revenue came from non-Memorex-manufactured products.

"We've built a channel of dis-

Continued on page 91

Inside

- Split decision on Stratus, Tandem investments. Page 86.
- Memotec Data acquires Teleglobe Canada. Page 87.

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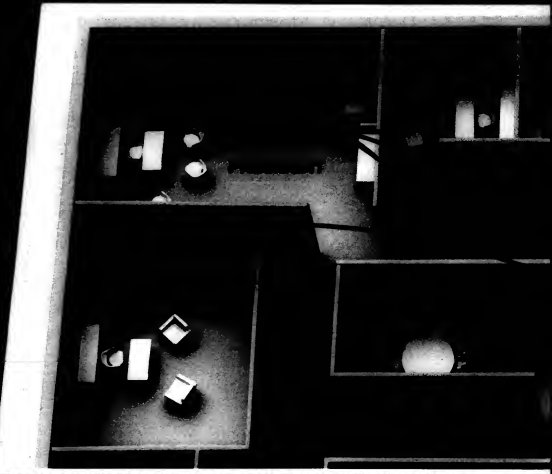

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ACTIVE ISSUES

Kathy Porteus

Fault-tolerant firms surge

Stratus Computer, Inc. (STRA — 32¼) and Tandem Computers, Inc. (TNDM — 57⅞) are among the star-studded cast that has made technology stock performances a hit this year.

But while some analysts continue shouting "Encore," others have tempered their enthusiasm, maintaining that current price levels of Stratus and Tandem adequately reflect their business outlooks.

Stratus and Tandem produce computer systems for on-line transaction processing applications, such as automatic teller machine networks or airline reservations.

Analysts agree that both companies are well positioned to grab a significant share of this market, the size of which is estimated to be $25 billion.

According to Jeffrey Canin, senior analyst with Hambrecht & Quist, Inc., Tandem's dramatic improvement in operating margins and Stratus's new high-end XA2000 computer system are fairly well assumed in each company's stock price.

"In a supportive stock market, these companies will do very well for the balance of the year," Canin says, "but the easiest money has been made."

> "IN a supportive stock market, these companies will do very well for the balance of the year."
>
> JEFFREY CANIN, HAMBRECHT & QUIST, INC.

Estimates bumped up

In mid-January, Tandem's stock surged over seven points when the company disclosed a 133% leap in earnings and a 40% jump in revenue for its first quarter ended Dec. 31.

The news also caused many analysts to raise estimates for Tandem's current fiscal year.

For example, David Wu, analyst with S. G. Warburg Co. of San Francisco, increased his earnings estimate to $2.35 from $1.90 per share.

Yet Wu recently shifted his recommendation of Tandem from a "buy" to a "hold." "With this major earnings surprise out of Tandem already," Wu says, "it's tough for me to see the company significantly beating the performance of other technology stocks." Wu recommends holding Stratus as well.

Hambrecht & Quist's Canin continues recommending purchase of both Tandem and Stratus, but as long-term investments. He estimates Tandem will earn $2.40 per share on $1.02 billion in sales in fiscal 1987, representing a 66% earnings and a 33% revenue improvement over fiscal 1986 results.

Canin estimates Stratus will earn $1 per share on $183 million in sales in its current fiscal year, ending Dec. 31.

Warm reception

According to Canin, Stratus's new high-end system was received warmly by investors because the company showed that its standard microprocessor-based system is not performance-limited and that it had achieved nearly a 50% improvement in the cost of transactions per second.

At least one analyst continues to aggressively recommend purchase of both Tandem and Stratus.

Jonathan Fram, computer analyst with Bear, Stearns & Co. in New York, says, "Some good news is clearly in the stock [prices], but good news about Stratus and Tandem keeps getting better."

According to Fram, so long as their earnings keep rising, Tandem and Stratus are "not more expensive than when valued on the next four quarters of earnings." Fram estimates Tandem will earn $2.40 per share in fiscal 1987.

He acknowledges that his earnings estimate for Stratus — $1.15 per share this year — is higher than the $1 to $1.15 per share that the company has encouraged.

But Fram is generally enthusiastic about the computer industry.

"This is a nine-inning ballgame for technology stocks," he says, "and we're still a long way away from the seventh-inning stretch."

MERGERS & ACQUISITIONS

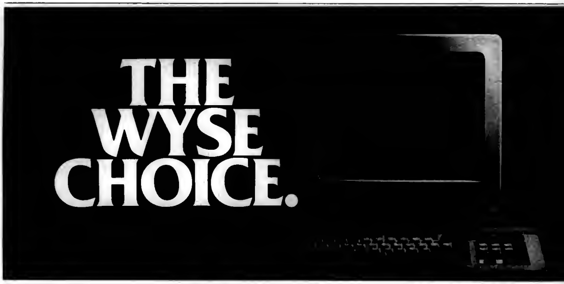
United States Leasing International, Inc. (USL) said that its United States Portfolio Leasing, Inc., subsidiary has acquired a 50% interest in **Hartford Financial Corp.**, an independent IBM computer dealer and lessor, which operates as **Hartford Computer Group**.

Headquartered in Inverness, Ill., Hartford specializes in short-term leasing of IBM computer peripherals and is also an active buyer and seller of used peripheral products.

The company has about 45 employees, and in 1985, it generated about $45 million in revenue.

DPCE, Inc., an independent computer maintenance organization headquartered in Norristown, Pa., has acquired **Systec, Inc.**, a like company, through the purchase of all outstanding shares.

DPCE is a wholly owned operating company of **DPCE Holdings PLC**, the largest international independent computer maintenance firm, with operating revenue in excess of $50 million per year.



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Japan

FROM PAGE 83

analysts say. More extreme measures, such as trade sanctions and duties, are needed to create fair competition.

"The problem won't be corrected until the U.S. imposes some stiff duties on a wide range of Japanese electronics goods," says Peter W. Kubiak, a semiconductor analyst with Kidder, Peabody & Co. in San Francisco.

"One possibility is the total shutdown of the importation of certain products into the U.S.," Rogers says.

"For example, no dynamic RAMs, for any reason, would be allowed into the country. If we really let them have it on one product, they would know they're going to have to change their behavior," Rogers states.

Being touted as a long-term solution to the problem is Sematech, the proposed government-industry consortium to assist the U.S. in chip manufacturing, in which Japan has the edge. The U.S. Department of Defense has voiced its support for the consortium, not wanting to rely upon foreign companies to supply the semiconductors for U.S. strategic weapons.

Years of development

Even if successful, however, Sematech would require several years of development before it could begin to make an impact.

In the meantime, the trade problems are expected to continue unless the U.S. government and industry can take appropriate action.

"Getting the industry together to cooperate on efficiency in manufacturing is most desperately needed," Kubiak says.

"But that will take a long time to get off the ground, and we need to plug the holes in the dike now," Kubiak maintains.

Although Sematech could provide some solutions in the long term, the government could put its funds to best use by supporting venture-capital investment and bolstering the level of silicon technology research and education grants, Rogers suggests.

Sorbus to supply IBM maintenance for GE

BY CLINTON WILDER
CW STAFF

FRAZER, Pa. — General Electric Co, recently selected the independent computer maintenance firm Sorbus, Inc. to be an authorized service provider for its IBM processors and peripherals.

Under a corporate master agreement, General Electric and RCA divisions, subsidiaries and affiliates will have the option to contract with Sorbus for maintenance on IBM mainframes.

The agreement applies to IBM's 3080 as well as to the midrange System/34, 36 and 38s.

Majority of maintenance

Currently, IBM provides the majority of computer maintenance to General Electric, according to a Sorbus spokesman.

Each General Electric business unit will be free to negotiate the length of time and extent of its maintenance contract with Sorbus.

Sorbus is a subsidiary of Bell Atlantic Corp. General Electric is one of the largest IBM users in the U.S., with the total value of its MIS installation ranked No. 2 in the U.S. by Computer Intelligence Corp.

Teleglobe Canada sold

Networking vendor seeks international presence

BY ELISABETH HORWITT
CW STAFF

MONTREAL — Moving to establish a presence in the international market, networking equipment vendor Memotec Data, Inc. has put in a successful bid for overseas telecommunications service provider Teleglobe Canada.

Memotec announced recently that the Canadian government has accepted Memotec's offer to purchase the communications carrier for $488.3 million.

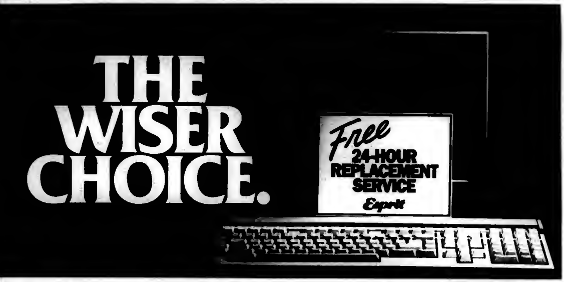
Teleglobe is the exclusive provider of telecommunications services between Canada and every country in the world except the U.S. and Mexico. Memotec, a publicly traded Montreal company, provides systems integration and computer services through its Data Processing Division, X.25 packet-switched networking solutions through its Data Communications Division and network control and management systems through its Infinet, Inc. division.

Infinet, formerly a privately held North Andover, Mass., company, was acquired by Memotec last July.

Teleglobe already uses Memotec's networking products to support its networking services. Although Memotec will not directly provide international distribution for Memotec's products, "their name is known internationally, so they could potentially provide us with international connections," said Infinet President Nicholas Papantonis.

With the acquisition of Teleglobe, scheduled for completion March 31, Memotec will possess total assets of $615 million. Teleglobe's assets, in combination with its established international presence, will allow Memotec to compete effectively in the international marketplace, the company claimed.

"The addition of Teleglobe to the Memotec group marks a significant milestone in the further expansion of Infinet's ability to provide products and services on an international scope," Papantonis said. The two companies will be working together to expand Infinet's product base to better serve Teleglobe's customer base, he added.



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May 20
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May 15
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April 9
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April 29
Los Angeles, CA (Burbank)
April 8
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April 21
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April 1
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April 2
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Memorex

CONTINUED FROM PAGE 83

tribution and service," he observed. "It's just a question of pumping more product through the channel."

Memorex's strategy is to take the best available product — whether manufactured in-house or purchased from another vendor — and tailor it to a particular customer's need. Mazza said there are a myriad of manufacturers of what he calls engines, such as head-disk assemblies, terminals or printers. The key, he said, is to interface these so-called engines within a systems architecture.

"What we do is provide a window into technology for the user of IBM-compatible equipment," Mazza said. "Since many customers are looking for an alternative to IBM, what we are doing is taking an engine, creating an interface and bringing it to the user so he has a choice."

While such a strategy may be well-suited to the communication products business, analysts said they believe that such an approach in the IBM plug-compatible disk-drive market may be more perilous. If Unisys has DASD manufacturing problems, Memorex may have difficulty lining up an alternate source.

DASD manufacturing for IBM and the plug-compatible vendors has always been fraught with difficulties, as the former Memorex can attest. For example, the firm was plagued with production problems throughout 1985 on its flagship IBM 3380-compatible drive.

Mazza said be believes Memorex is less vulnerable to potential manufacturing problems because it is now a distributor. While hoping the company will not need to turn to such a measure, Mazza suggested that Memorex has the flexibility to sign up Fujitsu Ltd. or Hitachi Ltd. as secondary sources.

Mazza cited a predecent for that move. Memorex's European operation has, in the past, purchased Fujitsu head-disk assemblies and configured them with controllers when in-house manufacturing problems have surfaced.

'Keeping costs in line'

Because Memorex is Unisys's second largest customer — accounting for some $200 million in DASD revenue — Mazza predicted that the firm's former parent will work hard to meet Memorex's needs. "They want to keep their factory busy to keep their costs in line," he said.

Moreover, Unisys maintains an equity stake in the new Memorex, Mazza pointed out. Under terms of the $620 million buyout, Unisys put up $73 million.

"We're highly confident that Unisys will come through," Mazza said. "For Unisys to keep up with DASD technology, they have to keep a foot in the IBM world. They have every incentive and desire to do so."

In fact, the loss of DASD manufacturing should help Memorex regain profitability after last year's small loss. "If you strip out disk drive manufacturing, last year Memorex was essentially profitable," he contended.

Memorex is projecting pretax profits of $98 million for the current year on revenue of $984 million. By 1991, the firm expects to earn $185 million, on a pretax basis, on revenue of $1.2 billion.

To accomplish such lofty goals, Memorex will emphasize a broad mix of products and expansion of its third-party maintenance business, which has been highly successful in Europe. While large storage peripherals will account for 30% of revenue, DASD will represent only 10% of the firm's business. Memorex expects to derive 30% of its revenue from communications products, including terminals, while service and supplies will provide 20% each.

While it is more difficult in the U.S. to ply customers away from their suppliers, Memorex is hoping that the move in many DP shops toward multivendor environments will boost its market share. "We see our smaller market penetration in the U.S. as an opportunity," Mazza said. "We think there is no question we can be as successful in the U.S. as we are in Europe."

CAD firms Valid Logic, Telesis merge

BY CLINTON WILDER
CW STAFF

SAN JOSE, Calif. — Two players in the electronic computer-aided design industry consolidated recently when Valid Logic Systems, Inc. announced an agreement to acquire financially struggling Telesis Systems Corp. of Chelmsford, Mass., for approximately $22 million in Valid Logic common stock.

Following completion of the merger, Telesis's electronic design automation workstations will be marketed under the name of Valid Logic, a vendor of computer-aided engineering workstations. However, Telesis President and Chief Executive Officer W. Douglas Hajar has been named president and CEO of Valid Logic. Valid Logic's founder, Jared A. Anderson, will retire, and its president, Kenneth B. Fine, will resign.

The two firms plan to consolidate sales and marketing operations. In its third quarter ended Dec. 28, Telesis took a $2.4 million charge for restructuring costs associated with the merger.

Telesis lost $3.8 million in the quarter on revenue of $2.6 million. The firm had been marginally profitable in the first six months of fiscal 1987, following a loss of $7.6 million in fiscal 1986. Telesis has lost money every year since 1983.

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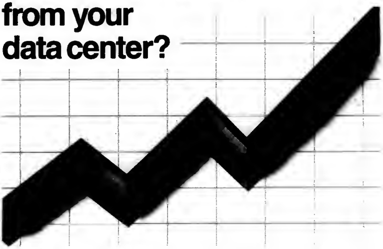

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NICKELS & DIMES

Wyse Technology, Inc. announced revenue for the third quarter ended Dec. 31 of $69.8 million, compared with $44.3 million a year ago. Profits were $4.7 million, or 39 cents per share, compared with $3.5 million, or 33 cents per share, in the prior year.

Decision Industries Corp. announced revenue for the fourth quarter ended Nov. 30 of $56.3 million, compared with $46.3 million in the like quarter last year. Profits were $6.8 million, or 72 cents per share, compared with $1.4 million, or 15 cents per share, in the previous year.

Revenue for the year was $195.1 million, compared with $175.6 million in the previous year. Profits were $7.7 million, or 82 cents per share, compared with $7.8 million, or 86 cents per share, in the previous year.

Seagate Technology Corp. reported revenue for the second quarter ended Dec. 31 of $251.9 million, a 149% increase from the $101 million reported for the like quarter a year ago. Profits were $37.6 million, or 76 cents per share, compared with $4.6 million, or 10 cents per share, one year ago.

NBI, Inc. reported a net loss of $3.9 million, or 42 cents per share, in the second quarter ended Dec. 31, compared with net income of $279,000, or 2 cents per share, in the previous year. Revenue was $69.8 million.

Intellicorp, Inc. announced a net loss for the second quarter ended Dec. 31 of $501,000, or 7 cents per share, compared with net income of $447,000, or 8 cents per share, in the previous year. Revenue was $4.9 million, compared with $4.5 million a year ago.

Silicon Graphics Computer Systems reported revenue for the secood quarter ended Dec. 31 of $18.4 million, a 105% increase over $9 million reported in the like period last year.

Discarding

CONTINUED FROM PAGE 83

comes wonderful.

Or look at IBM. IBM-bashing is in fashion. One widely read columnist recently took a large firm to task for choosing IBM over DEC as its office automation vendor. Why? Because "DEC has better products."

Never mind that the firm had just spent three months finding out that, for its needs, DEC didn't have better products. Today's fad is to bash IBM, so the columnist did.

Then there's Honeywell, Inc. Twenty years ago, a disgruntled ex-employee with a dramatic flair for writing used his newspaper column to put Honeywell down at every turn. Since then, "experts" have always predicted disaster for Honeywell users "next year."

While Honeywell has divested its computer business to a new corporate entity, its users have not been abandoned, and it doesn't appear they will be. NEC Corp. and Compagnie des Machines Bull would not have invested hundreds of millions with that intent, and the new company has no other businesses to fall back on. By now, the doomsayers should realize that using a Honeywell computer need not be a recipe for MIS failure.

Users pay for poor logic

Why don't they? Because it's "in" for consultants to knock Honeywell. It's illogical, but it's been there for a while and still is. Who suffers? Just users, who can be swayed by fads away from what would otherwise be their best choice.

Data General Corp. is another example. Two years ago, their OA focus was a "brilliant strategic move to position them for 1990." Then their technical users complained about being abandoned. All of a sudden, the brilliant strategic move turned into "abandoning their roots" and "overreacting to market shifts."

The truth lies somewhere in between. The fad pendulum swings from one extreme to the other.

It would be nice if we could reform the world. It would be nice if we could persuade industry advisory services to look at the facts objectively. It would be nice if we could stop advisors from taking the easy path by following the trends.

All these things would be nice, but they won't happen.

Since it won't happen, users must take matters into their own hands. Users should still engage consultants. They should read reference services. But they should listen to them with a large grain of salt wedged firmly in each ear.

Users should insist on hearing about the bad sides of the vendors the consultants like and the good points of the ones they don't. They should ask why someone might not follow the consultants' recommendations. They should demand meaningful points, not trivia.

Users must remember that the selection responsibility is ultimately theirs. They are the ones who will have to live with the outcome. Their decisions, whatever they are, whether they go with or against the current fads, must be ones they can live with.

Mallach is associate professor of computer science at the Boston College School of Management and a consultant to vendor and user executives.

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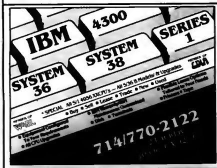
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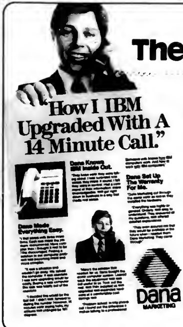

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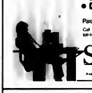

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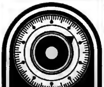

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Systems Programmer/Analyst: design, code, test, implement large scale online & batch systems using knowledge of computer science IBM 3032, 4331 Hardware, Systems Software such as JCL, ISPF, TSO & IMS DB/DC, VSAM, COBOL, FORTRAN, ASSEMBLER, & MIS development, implementation, maintenance for meeting changing requirements. Evaluate specific pieces of optimizing performance VIS-A-VIS operating system software, analyze software-related problems in application systems & correct software or suggest alternative solutions in the application systems, interface with technical staff in order to optimize application designs & troubleshoot applications software problems. BS in computer science plus 2 yrs. exp. in the job offered or 3 yrs. exp. as programmer analyst using above hardware and software. 40 hr/wk, $33,000/yr. Resume to: H. Stock, Job Service, 18 South Ave., Rochester, NY 14604.

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Apply computer languages (Cobol, JCL, SPSS, Mark IV and DL/1) to Hospital Integrated Management System Database to provide employer with requisite management data and to formulate reports for employer's administrators and for positions connected with employer and for submission by employer to public agencies (including City and State Health Departments) and others. Bachelors Degree with major field of study in Computer Science, Mathematics, Statistics or Economics required. 1 year experience. Salary $32,000/year. 40 hours D.O.T. Code 012167066. Mail resume to New York State Job Service, JO # 8012265, 485 Fifth Avenue, New York, New York 10017.

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VM
Experienced in installation and maintenance of VM/XA, VM/HPO and CMS. Proficiency in use of CMS required. Some knowledge of VM internals desirable.

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Network
Systems programming background and experience with ACF/VTAM, ACF/NCP, NPM, NCCF, etc. Knowledge of data communications hardware required

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Will be responsible for implementing and supporting the hospital's patient management systems. Included is the hospital's recent implementation of the SMS independence systems. These systems facilitate the hospital's clinic appointments, ADT and patient accounting. This position will be directly responsible for six programmer/analysts and will report to the Associate Director of Development. Excellent project management skills and extensive experience with large system installations are required. Experience with SMS systems is desirable.

Both positions require a Baccalaureate degree and minimum 5 years progressive data processing experience. Graduate degree and university teaching hospitals experience preferred. Salary open. Interested candidates should send a current résumé to:

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Associate Director, Information Services
North Carolina Memorial Hospital
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Responsibilities include implementation of new facilities, maintenance and tuning of the system and associated system level support software, and support for the development of new applications using PANVALET, CICS/VS 1.7, and ADABAS.

Qualifications include a B.S. in Computing or related field and two years of experience as an IBM MVS systems programmer. Additional experience and knowledge of MVS and JES2 internals, CICS/VS, TSO/E, ISPF/PDF, and VTAM desirable.

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Systems Analyst

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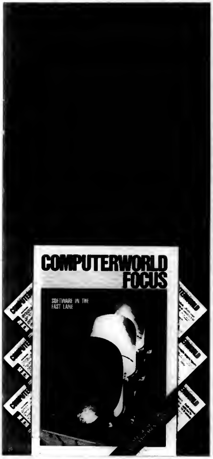
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Classification of Computer Communications Specialist III (salary from $30,851) or Computer Communications Specialist IV (salary from $3[illegible],046), depending on experience.

To apply for this position, send resume to the Personnel Department, ASU, Tempe, AZ 85287. Computing services positions are considered sensitive and require a criminal record check of successful candidates. Competitive benefits. Please state job title. Interviews will be arranged. An equal opportunity/affirmative action employer.

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Software Engineers and Application Analyst Programmers

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(3-7 years experience)

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(Reference CW-1).

Lead Analyst - Teleprocessing Support

(3-7 years experience)

Candidates must have good working knowledge of VTAM, NCP, SNA, and SDLC. Experience with TP monitors such as CICS, ENVIRON/1, TIS-DC, DATACOM/DC, IMS-DC, etc. is required. Work will encompass installing NCP software from a CBIPO using SMPE, tailoring VTAM and NCP macro definitions, maintaining ENVIRON and TIS-DC TP monitors, tuning and performance analysis, microcode generations for 3274 control units, troubleshooting and dump reading. Good personal communication skills for interfacing with domestic as well as international users are required.
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Interacts with users to determine requirements, then designs and implements appropriate IBM mainframe systems for use in Dallas and overseas. Candidates must have minimum of five years experience, with emphasis in large scale on-line business systems. Knowledge of petroleum marketing and refining operations a plus. Data base expertise also desirable.
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RECRUITMENT ADVERTISING SALES OFFICES
New England Recruitment Manager/Al DeMille
375 Cochituate Road, Box 9171, Framingham, MA 01701-9171 (617) 879 0700

New York Recruitment Manager/Mary Ellen Hessler
Paramus Plaza I, 140 Route 17 North Paramus, NJ 07652 (201) 967 1350

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FOREIGN EDITORIAL/SALES OFFICES

Argentina Ruben Argento CW Communications S/A, Av. Belgrano 406 Piso 9 CP 1092 Buenos Aires Phone (011) 54 134 5583 Telex (390) 22644 (BAZAN AR)

Asia Euan Barty Asia Computerworld Communications Ltd 701-4 Kam Chung Bldg, 54 Jaffe Road, Wanchai Hong Kong, Phone (011) 852 5 861 3236 Telex (780) 72827 (COMWOR HX)

Australia Alan Power Computerworld Pty Ltd 37-43 Alexander Street, Crows Nest NSW 2065 Phone (011) 61 2 4395133 Telex (790) AA74752 (COMWOR)

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Brazil Ney Kruel Computerworld do Brazil Rua Alondo Guanabara, 25-11 andar 20 031 Rio de Janeiro RJ Brazil, Phone (011) 55 21 240 8225 Telex (391) 21 30838

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Hungary Dezso Futasz Computerworld Informatika Co. Ltd. H 1536 Budapest, Pf 386 Hungary Phone (011) 36 1 228 458 Telex (861) 22 6307 (KSHP H)

Italy Dr Bruno Fazzini Computer Publishing Group S.R.L., Via Vida 7 20127 Milano, Italy Phone (011) 39 02 2613432 Telex (843) 335318

Japan Mr Shuji Mizuguchi Computerworld Japan, 7-4 Shintomi 1-Chome Chuo-ku, Tokyo 104 Phone (011) 81 3 551 3882 Telex (781) 252-4217 (Computerworld Japan only)

Steven Yamada, Tokyo Representative Corp., Samshin Kogyo Jimbocho 3F Chiyoda-ku Tokyo 101 Japan Phone (011) 81 3 230-4117-4118 Telex (781) J26860 (reps for all CWCI publications except Computerworld Japan)

Mexico Henry Morales, Computer Mexico S.A. de C.V., Oaxaca 21 2 Mexico City 7 D.F. Colonia Roma, 06700 Mexico, Phone (905) 514-4218 or 6309 Telex (383) 177 1300 (ACHAME)

The Netherlands Wout Berends CW Communications B.V. van Eeghenstraat 84 1071 GK Amsterdam The Netherlands Phone (011) 31 20 646426 Telex (844) 18242 (CWCOM NL)

New Zealand Reg Birchfield CW Communications Ltd. 13 Madstone St. Grey lnn Auckland 1 New Zealand Phone (011) 64 9 768 993 Fax (011) 64 9 780 244

Norway Morten Hansen CW Norge A/S Hovmveien 43, P.O. Box 2862 Toyen 0608 Oslo 6 Norway Phone (011) 472 647725 Telex (856) 76476 (CW NOR N)

People's Republic of China Chen Mingxun, China Computerworld, 74 Lu Gu Road Box 750 Beijing 100039 People's Republic of China Phone (011) 47 814 6174 Telex (716) 222214 (CCW CN)

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Sweden Bengt Marnfeldt CW Communications AB, Sodra Hamnvagen 22 S 115 41 Stockholm Sweden Phone (011) 46 8 67 91 80 Telex (854) 14904 9 (NOVACW)

Switzerland Gebhard Osterwalder CW Publikationen AG, Witikonerstrasse no 15, Postfach 253 CH 8030 Zurich Switzerland Phone (011) 41 1 55 10 77 Telex (845) 818 710

Taiwan Leona Wang, ACE Media Agency Co. Ltd., P.O. Box 26-578 Taipei Taiwan R.O.C. Phone (011) 02 751 3636 Telex (785) 14142 (ACE GROUP) (Representative for all CWCI publications)

London Martin Durham CW Communications Ltd 99 Grays Inn Rd London WC1 8UT United Kingdom Phone (011) 44 1 831 9252 Telex (851) 262346

United Kingdom Euan Rose Beere Hobson & Associates 34 Warwick Road Kenilworth Warwickshire CV8 1HE United Kingdom Phone (011) 09 26 512424 Telex (851) 311951 (BEEHOB) (Representative for all CWCI publications)

Venezuela Kalman von Vajna Nagy CW Comunicaciones C.R.L. Torre Maracaibo Piso 13, Oficina H Av. Libertador Caracas, Venezuela Phone (011) 58 2 72 76 30

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Phone (617) 879-0700 Telex 95-1153, FAX (617) 875-8931

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ADVERTISERS INDEX

Adobe Systems 82
ADR 3
Alloy Computer 30
Applied Management 21
Artificial Intelligence 43
AT&T 45,76,88-89

Bridge Communications 72

California Software Products 57
Cambex 38
CGI Systems 65
Chen 34
Cincom 62
Codex 40
Compaq 70-71
Concurrent Computer 95
Communication Networks '87 54
Cullinet 40/41
CW Circulation 63
CW Corporate 51
CW Testimonial 110
CXI 52

Data Design 55
Data General Corp 26-27
DCA Network 20-21
Duquesne 69

EMC 68
Esprit 86-87

First Boston 79
Flagstaff Engineering 20

Group Operations 12

Hewlett-Packard 66-67
H&M Software 115
Honeywell 58-59

ICCP 6
Information Dimensions 24-25
Informix 31
Innovation Data Processing 7
Intellogic Trace 34
Interface Group 80
Interlink 92-93
Intermec 46
ITT 56

JDS Microprocessing 45

Local Data 81
Lotus Development Corp. 32-33

McCormack & Dodge 116
Michaels Ross & Cole Ltd 48
Micro Data Base Systems,Inc 64
Microsoft 36-37,42

National Advanced Systems 91
NCR 39
NEC 84-85
Novell 60

On-Line 13
Oracle 9,19,29

Radio Shack 94
Rapid 49
Realia Inc. 74
Relational Technology 18
Robert Half 44

SAS Institute 22-23,41
Sequent Computer 35
Soft Switch 10
Software Technology & Research (STAR) 38
SPSS 78
Storage Technology 96-97
Syncsort 5

Teknowledge 11
Telex 28
Texas Instruments 14,48-49
Tone Software 54

Uccel Corp. 13
Ultimate Corporation 73

VM Software 90

Walker Interactive 15

Xerox 50

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DDM holds

FROM PAGE 1

nent of a distributed relational DBMS, which IBM said it is working on, is a way to keep track of file locations across the network so that DDM software running on each node will know where to send data requests. The most effective solution to this problem is a global data dictionary, Dzubeck asserted, adding that IBM has promised — but not yet delivered — one for DB2.

Before it introduces a global data dictionary for DDM, however, Dzubeck said, IBM is likely to provide an intermediate solution: a distributed file directory in which different systems on the network keep each other apprised of file additions and relocations.

The current DDM product family requires a programmer to manually set up each directory and key in updates when files are added or moved, "which is not a problem with a typical order-entry system but is when you have a volatile system," IBM's Fisher explained. "IBM is working on this problem," he added.

Another important task for IBM, according to Dzubeck, is to extend full distributed data base functions down to the PC and "let DDM handle communications between data bases." The current DDM/PC product allows IBM PCs to initiate source DDM functions that access applications and files on target DDM nodes; however, it does not allow PCs to run target DDM software that provides applications to other systems on the network, IBM said.

DDM/PC enables the PC user to transparently access files and applications on any IBM host running a target DDM program, via LU6.2 peer-to-peer networking protocols. IBM has previously announced DDM releases for the System/36, System/38 and 370/CICS hosts.

DDM/PC does not provide a user's "plug-and-play" solution but rather a programmer's build-your-own applications kit. The product enables multiple PC users to access files across different IBM hosts, but first, someone must write an unspecified amount of code so that new or existing PC applications can interface with the DDM system, IBM admitted.

Simplifies interfacing

DDM/PC significantly simplifies the task of interfacing applications with LU6.2's peer-to-peer networking functions, Dzubeck observed. DDM/PC interfaces directly with IBM's LU6.2, allowing applications to bypass IBM's PC-DOS operating system and saving users from the need to "get intimate with IBM's Applications Programming Interface [API] and with the LU6.2 networking environment," Dzubeck explained.

"DDM talks to API, which in turn talks to LU6.2." Without DDM, a programmer would have to write API hooks into an application — a much harder task, an IBM spokeswoman asserted.

Companies that are already converting their existing applications and communications systems to LU6.2 should not find DDM conversion to be that much additional work, Dzubeck said.

However, customers may have a long wait before they can use existing PC software packages, such as Ashton-Tate's Dbase III, to access host files via DDM, Dzubeck claimed. "Ashton-Tate will have to come up with a DDM-compatible Dbase or something," he said.

"The problem is that DDM provides no complete application," commented Atul Kapoor, vice-president of Haworth, N.J., consulting firm Kaptronix, Inc. "It may not be such a big deal to restructure mainframe CICS files to conform to DDM formatting. There are utilities to do this. But on the PC side, IBM provides the foundation and expects you to develop the software to call DDM."

IBM's Fisher said that the user, systems integrator or software vendor will "have to encode some things" before an existing software package can access remote or local files through DDM/PC. He did not say how much code would be needed.

The current DDM offering works particularly well in a distributed order-entry environment, according to Fisher, since it enables users in various branch offices and warehouses to call up a customer file, for example, on one host system and a pricing file on another, process the order on a PC and then update the files. DDM's record locking feature allows multiple users to concurrently update different records on the same file, he added.

DDM allows the user to bypass many of the steps required for Systems Network Architecture-based communications, such as designating a file's location and setting up a host session for each record access.

One potential obstacle both to DDM support for existing PC-DOS applications and to full participation of PCs in a DDM network is the fact that PC-DOS does not support a record-oriented file interface.

"The PC sees data as one long stream, while DDM handles two-dimensional, record- and field-oriented files," Fisher said. An API component within DDM/PC performs translations between the PC's data stream-oriented architecture and the host system's record-oriented file systems, he added.

DDM/PC is priced at $395 and scheduled for availability in the third quarter. DDM for the System/36 and 38 is available now; the 370/CICS release is scheduled for release in March.

Novell challenges 3Com with E-Net adapter card

BY PATRICIA KEEFE
CW STAFF

SALT LAKE CITY — Novell, Inc. last week launched an assault on rival 3Com Corp. with the unveiling of a low-cost Ethernet adapter card. Although Novell currently distributes two 3Com Ethernet cards, the relationship between the networking foes appears doomed.

The company also introduced a developer's kit for its Netware Message Handling Service (MHS) and made public its purchase of Softcraft, Inc. The announcements were made at Novell's third annual Netware Affiliates Developers Conference, held here last week.

The Novell $495 E-Net adapter is a half-size card that uses CMOS chip technology to reduce power consumption.

'Variety of choices'

"Part of our strategy is to supply a wide variety of choices for the many Netware customers who use Ethernet local-area networks," said Craig Burton, Novell's vice-president of corporate marketing and development.

But these choices will on longer include Ethernet adapter cards from 3Com, according to Burton. Novell is unlikely to renew that contract, which expires this month, he said.

Features on the E-Net adapter include National Semiconductor Corp.'s DP8390 Network Interface Controller, 8K bytes of random-access memory for buffer storage and direct-memory access to and from the Intel Corp. 8088-based machine. E-Net also uses string I/0 in Intel 80286-based machines for fast data transfer to the host's memory.

E-Net is available for network file servers and local-area network (LAN) workstations and is compatible with all other Ethernet adapters offered by Novell today. Despite using a different software driver, E-Net can coexist with the other Ethernet boards on the same Netware network.

The initial release of MHS will target asynchronous communications, but Novell has promised to provide future support for standard message and connection protocols such as X.25, IBM's Systems Network Architecture and Professional Office Systems and Digital Equipment Corp.'s All-In-1.

Slated for release next month, the MHS software provides message transfer and routing services between different LANs, minicomputers and mainframe computers throughout a wide-area network.

Novell. also announced the signing of a definitive agreement to acquire Austin, Texas-based Softcraft in exchange for 130,400 shares of Novell common stock.

Softcraft, which has 18 employees and $2 million in sales, will retain its name and operate as a wholly owned subsidiary. The acquisition will be accounted for as a pooling of interests.

Softcraft is a developer of high-performance programming tools and is best known for its Btrieve data base utility for developing applications programs. Novell is said to be working on a data base file server with IBM and Microsoft Corp.

Softcraft Chairman and Chief Executive Officer Tom Reinertson said Btrieve has an installed base of more than 8,000 users and 10,000 units sold.

Recovery features to improve CICS uptime

BY CHARLES BABCOCK
CW STAFF

RYE BROOK, N.Y. — IBM last week announced Version 2.1 of CICS for the MVS/XA operating system, including special recovery features to improve the availability of its on-line teleprocessing monitor.

The new version will be available in the fourth quarter this year, but the recovery features will not be available until the first half of 1988, and then on a "managed availability" basis to IBM customers meeting certain planning and technology requirements, said Paul Neuman, spokesman for the IBM Information Systems Group in Rye Brook, N.Y.

"This appears to be a substantial new release based only on the recovery capabilities," said Rick Holtmeier, executive vice-president of CICS systems house On-Line Software International in Fort Lee, N.J.

The version adds an additional flavor of CICS to the previous releases geared to work with OS, DOS and MVS/SP operating systems, Holtmeier noted.

Version 2.1 includes the capability to detect system failures and quickly intervene to transfer CICS operations to an alternate CICS system running on the same processor, the IBM programming announcement said. A similar transfer can be effected to CICS on a different processor but requires the intervention of an operator rather than occurring automatically, according to the announcement.

Although it was not clear whether all transactions could be saved in such a transfer, Holtmeier said tasks that are in flight are likely to be backed out or dropped from active status in the transfer to maintain data integrity.

IBM also said the transfer could be necessitated by a failure in the processor, the MVS/XA operating system or in CICS components. CICS users complain that the most common system failure stems from storage violations that taint CICS control code and cause crashes once they are invoked.

Another recovery feature of the planned CICS Extended Recovery Facility is the automatic switching of remote VTAM/Systems Network Architecture terminals to another system without loss of end-user sessions, IBM's programming statement said.

The monthly license charge for Version 2.1 will be $2,485.

Recovery for IMS/VS

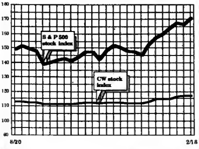
IBM also announced Extended Recovery Facility for IMS/VS users, including IMS Fast Path customers. It is available on a managed availability basis in the second half of this year. Prospective customers will face a technical assessment, and IBM warns that Extended Recovery Facility requires detailed and careful preinstallation planning.

Large customers, such as banks and insurance companies, have been waiting for the recovery features to guarantee recovery of their high-transaction systems, and IBM has acknowledged in the past that producing those features has posed a greater technical challenge than it anticipated.

IBM appears to be expecting a slow and careful shakedown of the product. Its customer information letters warn, "If the order rate exceeds build-up rate, orders may be subject to extended scheduling."

The Extended Recovery Facility for IMS will be included in the existing charge for IMS Version 2.

STOCK TRADING INDEX



Indexes	*Last Week*	*This Week*
Computer Systems	138.1	**142.5**
Supplies & Accessories	160.8	**161.7**
Software & DP Services	131.3	**132.2**
Semiconductors	106.3	**106.1**
Peripherals & Subsystems	127.6	**129.7**
Leasing Companies	117.2	**121.1**
Composite Index	116.8	**117.2**
S&P 500 Index	166.0	**170.7**

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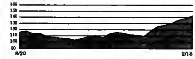

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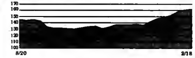

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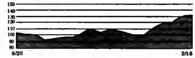

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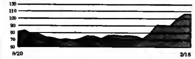
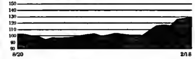
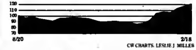


Peripherals and Subsystems



Leasing Companies



CW CHARTS: LESLIE J. MILLER

Stock trading summary

CLOSING PRICES WEDNESDAY FEBRUARY 18 1987

Computer Systems

EXCH		52 WEEK RANGE (1)		PRICE CLOSE FEB 18 1987	WEEK NET CHNGE	WEEK PCT CHNGE
O	ALPHA MICROSYSTEMS	8	4	4.50	+0.1	+2.9
O	ALTOS COMPUTER SYS	19	10	17.13	+1.6	+10.5
A	AMDAHL CORP	40	14	38.75	+4.1	+11.9
O	APOLLO COMPUTER INC	23	9	21.50	+0.5	+2.4
O	APPLE COMPUTER INC	67	24	63.50	+7.0	+12.4
N	AT&T	26	21	23.50	0.4	1.6
O	C P T CORP	7	3	4.13	+0.5	+13.8
N	COMPAQ COMPUTER CORP	35	12	31.88	-2.8	-9.0
A	COMPUTER CONSOLES INC	12	6	10.25	1.0	8.9
O	CONCURRENT COMP CORP	25	11	15.00	+0.1	+0.8
N	CONTROL DATA CORP	31	20	30.00	+0.5	+1.7
O	CONVERGENT TECH	13	4	10.63	+0.3	+2.4
N	CRAY RESH INC	121	65	117.50	1.5	1.3
O	DAISY SYS CORP	18	8	12.13	+0.1	-1.0
N	DATA GEN CORP	46	25	37.63	+1.6	+4.5
N	DATAPOINT CORP	9	4	5.13	0.5	8.9
N	DIGITAL EQUIP CORP	158	76	155.00	+4.6	+3.1
N	FLOATING POINT SYS INC	46	11	15.38	-0.4	+2.5
N	GOULD INC	30	15	20.00	0.3	1.2
N	HARRIS CORP	40	27	39.00	+1.1	+3.0
N	HEWLETT PACKARD CO	60	36	56.75	-3.8	-6.8
N	HONEYWELL INC	84	58	69.00	+2.0	+3.0
N	IBM	162	116	138.00	+4.0	+3.0
O	IPL SYS INC	4	2	2.50	-0.4	17.6
N	ITT CORP	64	41	63.00	+1.6	+2.6
N	M A COM INC	19	12	13.88	0.3	1.8
N	MATSUSHITA ELEC INDL LTD	136	64	127.00	-4.1	-3.4
O	MENTOR GRAPHICS CORP	29	11	27.75	+3.4	+13.8
N	NBI INC	14	8	10.63	+0.1	+1.2
N	NCR CORP	63	40	62.25	+3.6	+6.2
N	PRIME COMPUTER INC	28	10	22.38	+0.3	+1.1
O	STRATUS COMPUTER	34	17	32.75	+1.8	+5.6
O	SYMBOLICS INC	15	4	4.38	0.4	7.9
O	TANDEM COMPUTERS INC	61	22	59.00	+2.3	+4.2
N	TANDY CORP	56	31	53.38	+2.5	+4.9
N	TEXAS INSTRS INC	161	103	159.63	+0.0	+0.4
A	ULTIMATE CORP	35	13	23.13	2.4	8.3
N	UNISYS	113	58	111.38	+8.4	+8.1
A	WANG LABS INC B	22	11	15.13	+0.3	+1.7
A	WANG LABS INC C	22	11	15.50	+0.4	+2.5
N	XEROX CORP	75	49	73.13	+4.1	+6.0

Supplies & Accessories

EXCH		52 WEEK RANGE (1)		PRICE CLOSE FEB 18 1987	WEEK NET CHNGE	WEEK PCT CHNGE
N	AMER BUSINESS PRODS	37	23	30.75	+1.1	+3.8
N	BARRY WRIGHT CORP	25	14	18.88	1.4	6.8
A	DUPLEX PRODS INC	23	16	20.50	0.3	1.2
N	ENNIS BUSINESS FORMS INC	34	22	32.63	+0.1	+0.4
N	3M CO	140	95	132.75	+1.8	+1.3
N	MOORE LTD	28	20	24.88	+0.5	+2.1
O	STANDARD REGISTER CO	50	32	44.75	+2.5	+5.9
N	WALLACE COMPUTER SVCS	50	37	44.88	0.5	1.1

Software & DP Services

EXCH		52 WEEK RANGE (1)		PRICE CLOSE FEB 18 1987	WEEK NET CHNGE	WEEK PCT CHNGE
O	ADVANCED COMP TECH	7	3	4.25	0.3	5.6
N	ADVANCED SYS INC	21	12	20.38	-0.0	+3.2
N	AGS COMPUTERS INC	37	17	35.25	-0.9	+2.5
O	AMERICAN MGMT SYS INC	31	13	28.75	0.3	0.9
O	AMERICAN SOFTWARE INC	23	9	22.75	+1.8	+8.3
N	ANACOMP INC	7	3	6.00	0.4	5.9
O	ANALYSTS INTL CORP	11	4	10.88	+0.9	+8.8
O	ASHTON TATE	30	10	27.00	1.0	3.6
O	ASK COMPUTER SYS INC	17	9	16.88	+0.8	+4.7
O	ASTRADYNE COMP IND	3	1	1.88	-0.0	1.6
N	AUTOMATIC DATA PROC	47	29	45.38	-2.4	+5.5
O	BOOLE & BABBAGE INC	11	4	9.50	1.3	11.6
N	COMPUTER ASSOC INTL INC	44	17	39.88	2.4	5.6
O	COMPUTER HORIZONS CORP	14	10	14.13	-1.0	-7.6
O	COMPUTER NETWORK TECH	10	4	5.19	0.2	3.5
N	COMPUTER SCIENCES CORP	54	30	52.25	+1.5	+3.0
O	COMPUTER TASK GROUP INC	19	11	16.75	0.3	1.5
O	COMPUTONE SYS INC	6	0	0.19	+0.0	+0.0
O	COMSHARE INC	16	10	14.75	+0.6	-4.4
N	CULLINET SOFTWARE INC	17	6	10.63	0.5	4.5
O	CYCARE SYS INC	17	7	8.88	0.1	1.4
O	DUQUESNE SYS INC	33	18	45.50	+1.0	+2.2
N	GENERAL ELEC CO	104	71	102.38	+3.0	+3.0
N	GENERAL MTRS CORP	50	24	37.25	+0.5	+1.4
O	HOGAN SYS INC	15	7	13.63	0.1	0.9
O	INFORMATION SCIENCES INC	4	1	1.00	0.1	11.1
O	INFOTRON SYS CORP	19	7	9.75	0.3	2.5
O	KEANE INC	16	5	8.75	+0.0	+0.0
N	LOGICON INC	38	22	28.13	+1.1	+4.2
O	LOTUS DEV CORP	78	23	73.00	0.5	0.7
O	MANAGEMENT SCI AMER	21	11	19.63	1.3	6.0
O	MCI COMM CORP	13	5	5.25	0.4	6.7
O	MICOM SYS INC	20	10	16.25	0.8	4.4
O	MICRO PRO INTL CORP	5	2	4.19	+0.2	+4.7
O	MICROSOFT CORP	78	26	71.75	+0.0	+0.0
O	NATIONAL DATA CORP	27	16	25.38	+0.0	+0.0
O	ON LINE SOFTWARE INT	19	10	18.50	+0.0	+0.0
O	ORACLE SYS CORP	38	13	37.50	+8.3	+20.0
N	PANSOPHIC SYS INC	42	25	39.88	+1.1	+2.9
O	POLICY MGMT SYS CORP	30	15	28.75	+1.8	+6.5
O	PROGRAMMING & SYS INC	11	8	9.00	0.3	2.7
O	REYNOLDS & REYNOLDS CO	42	27	35.25	-0.0	+0.0
O	SCIENTIFIC COMPUTERS INC	8	4	7.88	-0.0	-0.0
O	SEI CORP	28	15	24.25	-1.0	+4.3
O	SHARED MED SYS CORP	53	30	41.50	7.8	15.7
O	SOFTWARE AG SYSTEMS INC	22	10	16.00	+0.8	+4.8
O	SOFTWARE PUBG CORP	14	5	12.88	+1.5	+13.2
A	STERLING SOFTWARE INC	21	10	12.25	0.4	3.0
N	SUNGUARD DATA SYSTEMS	20	10	19.75	+0.1	+0.6
N	UCCEL CORP	34	17	33.75	+2.8	+8.4
N	URS CORP	20	11	20.00	+1.5	8.1
O	VM SOFTWARE INC	38	12	38.25	+1.1	+3.0

Semiconductors

EXCH		52 WEEK RANGE (1)		PRICE CLOSE FEB 18 1987	WEEK NET CHNGE	WEEK PCT CHNGE
N	ADVANCED MICRO DEV	34	13	23.13	+0.6	+2.8
N	ANALOG DEVICES INC	25	14	22.13	-0.5	+2.3
O	ANALOGIC CORP	15	10	12.00	+0.0	+0.0
N	APPLIED MAGNETICS CORP	25	13	23.75	+0.8	-3.3
O	AVANTEK INC	23	14	18.00	+0.3	+1.4
O	HADCO CORP	6	3	4.50	0.5	10.0
O	INTEL CORP	39	16	37.00	1.1	3.0
O	MICRO MASK INC	7	2	5.00	+0.0	+0.0
N	MOTOROLA INC	51	34	50.00	+0.6	+1.3
N	NATIONAL SEMICONDUCTOR	16	8	15.38	+0.1	-0.8
N	TERADYNE INC	30	16	23.25	0.1	0.5

EXCH N - NEW YORK A - AMERICAN P - PACIFIC B - BOSTON
L - NATIONAL M - MIDWEST O - OVER THE COUNTER S - SPLIT

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(1) TO NEAREST DOLLAR

Peripherals & Subsystems

EXCH		52 WEEK RANGE (1)		PRICE CLOSE FEB 18 1987	WEEK NET CHNGE	WEEK PCT CHNGE
A	AM INTL INC	9	5	8.75	+1.1	+14.8
A	ANDERSON JACOBSON INC	3	1	2.13	0.1	2.9
O	AST RESH INC	27	11	16.75	+0.1	+0.7
O	AUTOTROL CORP	10	5	9.00	+0.3	+2.9
O	AVANT GARDE COMPUTING	7	3	4.00	+0.0	+0.0
O	BANCTEC INC	13	6	10.88	1.5	12.1
N	BOLT BERANEK & NEWMAN	60	36	57.50	+4.4	+8.2
A	CETEC CORP	9	5	6.00	+0.3	+4.3
A	COGNITRONICS CORP	6	2	4.13	+0.0	+0.0
N	COMPUGRAPHIC CORP	27	16	22.25	+0.5	+2.3
N	COMPUTERVISION CORP	23	10	21.88	0.1	0.6
N	CONRAC CORP	18	12	16.63	+1.1	+7.3
A	DATAPRODUCTS CORP	18	11	14.50	+0.0	+0.0
A	DATARAM CORP	18	7	7.25	1.8	19.4
O	DATA SWITCH CORP	9	6	6.75	0.5	6.6
O	DATUM INC	7	4	6.13	0.1	2.0
N	DECISION INDS CORP	15	8	11.88	+0.4	+3.3
O	ENDATA INC	9	5	8.75	0.3	2.8
O	EMC CORP	34	11	32.00	+4.0	+14.3
O	EVANS & SUTHERLAND	37	20	36.25	+4.5	+14.2
N	FLOATING POINT SYS INC	46	11	15.38	-0.4	+2.5
O	GANDALF TECHNOLOGIES	9	4	8.38	0.1	1.5
N	GENERAL DATACOMM IND	15	8	12.50	0.4	+3.1
N	HAZELTINE CORP	30	16	29.75	+0.0	+0.0
O	ICOT CORP	13	8	10.50	0.1	+1.2
O	INFORMATION INTL INC	18	13	14.25	0.0	+0.0
O	INTECOM INC	7	3	3.00	0.0	-0.0
O	INTERLEAF INC	15	8	10.88	0.5	4.4
O	MEGADATA CORP	7	2	6.00	0.5	[illegible]
A	MSI DATA CORP	15	10	13.88	[illegible]	[illegible]
N	NASHUA CORP	29	19	28.38	[illegible]	[illegible]
O	NETWORK SYS CORP	19	10	16.38	[illegible]	[illegible]
N	NORTH AMERN PHILIPS CORP	48	35	43.75	[illegible]	[illegible]
N	NORTHERN TELECOM LTD	45	27	43.75	[illegible]	[illegible]
O	NOVELL INC	40	14	38.00	[illegible]	[illegible]
N	PARADYNE CORP	11	4	5.63	[illegible]	[illegible]
A	PENRIL CORP	9	4	5.88	[illegible]	[illegible]
N	PLESSEY PLC	38	24	32.38	[illegible]	[illegible]
O	PRINTRONIX INC	15	10	12.63	[illegible]	[illegible]
O	QMS INC	11	10	10.13	[illegible]	[illegible]
O	RAMTEK CORP	7	3	5.00	[illegible]	4.8
N	RECOGNITION EQUIP INC	27	10	20.50	[illegible]	[illegible]
O	SCAN TRON CORP	19	11	10.88	[illegible]	[illegible]
N	SCIENTIFIC ATLANTA INC	15	9	14.88	-0.8	-4.4
O	SEAGATE TECHNOLOGY	42	9	39.75	4.1	+11.7
N	STORAGE TECHNOLOGY	7	2	4.88	+0.6	+14.7
O	SUN MICROSYSTEM INC	32	11	30.88	+1.6	+5.6
A	T BAR INC	8	5	6.00	0.0	-0.0
A	TAB PRODS CO	18	12	17.63	0.4	+2.2
O	TANDON CORP	8	2	3.08	0.0	-0.0
A	TEC INC	7	3	3.75	0.0	+0.0
N	TEKTRONIX INC	43	27	41.63	+4.3	+11.4
O	TELEVIDEO SYS INC	4	2	2.63	0.0	0.0
N	TELEX CORP	91	52	90.75	2.5	+2.8
N	TIMEPLEX INC	36	14	33.75	0.4	1.1
N	TITAN CORP	12	8	7.75	+0.0	-0.0
O	VISUAL TECHNOLOGY INC	1	0	0.44	+0.0	0.0
O	WYSE TECH	28	13	27.50	+2.4	+9.5

Leasing Companies

EXCH		52 WEEK RANGE (1)		PRICE CLOSE FEB 18 1987	WEEK NET CHNGE	WEEK PCT CHNGE
N	COMDISCO INC	27	15	27.00	+2.5	+10.2
N	CONTINENTAL INFO SYS	14	7	13.00	+2.5	+23.8
O	FINALCO GROUP INC	5	2	3.00	+0.0	+0.0
O	PHOENIX AMER INC	8	3	8.75	0.6	6.5
O	SELECTERM INC	17	5	5.50	0.1	5.4
N	U S LEASING	47	36	46.63	0.1	0.3

HP suffers setback

Stock drops after financials revealed; IBM, CIS post big week

Traditional blue-chip stock Hewlett-Packard Co., which has generally ridden the crest of the current bull market, received a setback last week after announcing lackluster first-quarter results.

HP climbed 2½ points to a 52-week high of 58¾ in last Tuesday's record 54-point surge in the Dow Jones industrial average but fell 3⅜ to 53¼ Thursday after announcing its financials. Investors apparently reacted to HP's statement that its U.S. order picture remains sluggish.

HP was the New York Stock Exchange's third most active issue that day with volume of more than two million shares.

IBM advanced 3⅞ to 138⅞ points in Tuesday's session, but the increase was more attributable to the surging overall market tide than to Big Blue's product announcements.

It was a big week for Continental Information Systems Corp. (CIS), a leading independent computer leasing firm in Syracuse, N.Y. After a favorable article on CIS appeared in *Barron's* financial newspaper, CIS stock climbed more than 15% Tuesday, gaining 1¾ points to 13¼.

CLINTON WILDER

AT&T annoints Microsoft as Unix king

BY ALAN ALPER
CW STAFF

NEW YORK — AT&T and Microsoft Corp. last week joined forces to create a standard implementation of the Unix operating system for Intel Corp. 80386-based microcomputers.

Under terms of the agreement, Microsoft will develop a version of Unix that will combine Microsoft's Unix derivative, Xenix System V 386, and AT&T's Unix System V Release 3. Applications developed for both Unix implementations will run under the new version without modification, the two firms said.

"The goal of Microsoft and AT&T is to create a merged product that is a binary standard for 386-based systems," said Bill Gates, chairman and founder of Microsoft. "The merged product would be a subset of the standard created in Xenix 386."

The merged implementation of Unix for 386-based machines is scheduled for availability by the first quarter of next year, under the Unix trademark, both companies said. In the meantime, AT&T will continue to market Unix System V Release 3, while Microsoft will offer Xenix System V 386, a release that is expected to be available by the end of this quarter.

As partners, AT&T will chart the strategic course of the Unix operating system in implementations for Intel microprocessors, and Microsoft will do the development work, the firms said.

Both firms said the arrangement will end the fragmentation of the low end of the Unix marketplace, a segment where a number of Unix derivations — such as University of California at Berkeley's Unix 4.2, Xenix and Unix System V — have vied for attention as the Unix standard.

The new version of Unix will consolidate 80% of the Unix market under one standard operating environment, said Vitorrio Cassoni, senior vice-president of AT&T's Data Systems Division.

Microsoft's Gates said the merged product will take less than 10% additional memory space than Xenix 386. "There would be no speed penalty in using the merged product," he added.

The merged Unix operating system for 386-based systems will include VP/IX, a program developed for AT&T by Interactive Systems Corp. and Phoenix Technologies, Inc., which enables Microsoft MS-DOS applications to run as tasks under Unix.

Gates declined to say whether new versions of DOS will provide the ability to coexist with Unix.

"Today is not the day to speculate about new releases of DOS," he said.

'286 DOS

FROM PAGE 1

plans. "We are not making any product announcements, and we are not describing any products in detail," said Adrian King, director of operating systems, regarding the seminar that was held after press time.

What Microsoft did commit to was a general explanation of its systems software strategy. A chief item on the agenda was a discussion of 286 DOS, Microsoft's operating system that allows applications to run in protected mode and address up to 16M bytes of random-access memory (RAM). Existing applications that are constrained by the so-called 640K-byte limitation run in real mode.

According to Gates, Microsoft will release 286 DOS in three phases. The first, which sources say may come as early as the first or second quarter, will be a release for software developers. Next will be a version to be beta-tested by end users, followed by the final release. DOS-based applications that take full advantage of 286 DOS-class machines will probably not arrive until the middle of next year — four years after IBM announced the original IBM PC AT.

Users who expect that 286 DOS will quickly solve a host of problems may be disappointed. The 286 DOS will not provide multitasking for existing real-mode applications, according to Gates, who said the operating system will run only one real-mode application at a time. Protected-mode applications will take advantage of the operating system's multitasking capability, Gates said.

Perhaps the most important point of confusion concerns reports that IBM will market a version of the operating system that will be incompatible with the versions made available to IBM's competitors. Last week, Gates shrugged off that notion. "There are always those reports," he said, "and it gets a little different flavor; sometimes it is with an 8086 machine, sometimes it is 286, and it is never going to go away."

King said Microsoft has received a bad rap for the delays in the release of 286 DOS. In addition to the operating system, the firm is working on a version of Windows, networking products and development tools, companion work that makes the overall development more complex.

In addition, developing an operating system that provides compatibility with existing applications, as well as up to 16M bytes of RAM for the next generation of applications, is difficult given the constraints of the chip itself, Microsoft said.

It is these microprocessor constraints that have prompted Steve Ballmer, vice-president of systems software, to call the 80286 chip "brain damaged." According to Ballmer, the chip contains a real mode, which is used to run existing applications, and a protected mode, which allows applications to outgrow the 640K-byte RAM limitation. These modes are inherently incompatible, and much of Microsoft's development time has been spent trying to work around the chip's limitations.

INSIDE LINES

But do they do Windows? IBM is reportedly showing a graphical interface that is widely impressing even vendors who are tired of interface offerings. IBM's new entry is neither Topview nor Microsoft Windows but includes some characteristics of each, such as multiple, bit-map, graphical windows that run different applications. An analyst familiar with the interface said it is compatible with both Windows and Topview. He speculated that IBM may unveil it in April — the latest forecast for a hardware announcement date.

Mature outlook. It's not just the micro software houses that are riled up about the recent legal assault Lotus launched against two makers of 1-2-3-like software. John Cullinane, head of Cullinet Software, said he thinks "it's an absolutely lousy lawsuit, and I hope they lose." At a recent meeting of the Massachusetts Software Council, he was asked for his opinion on the Lotus controversy, and the Cullinet chairman made it clear that he believes it could negatively impact all software development. "The lawsuit is a terrible thing. If Dan Bricklin took that position with Visicalc, there might not be a 1-2-3," Cullinane added.

Sign me up, boss! IBM salesmen say they are being offered incentive bonuses to win competitive bids against five major non-plug-compatible competitors, according to an industry source. The competitors include DEC, Unisys and three other manufacturers. The terms of the bonus may vary from region to region, the source said.

Where's the finish line? The race for distributed data base management, already heated among Unix and VAX software vendors such as Oracle and Relational Technologies, is gaining momentum in the IBM software arena as well. IBM mainframe software vendors such as Cullinet, ADR and Software AG are working on distributed data base management products that will support IBM's LU6.2 peer-to-peer networking protocols but not IBM's recently announced Distributed Data Management system, according to Frank Dzubeck, president of Communications Network Architects. However, several users interviewed by *Computerworld* have said they won't consider such products until vendors come up with an easier way to ensure consistency of data and keep track of file locations throughout a distributed system.

One-way street. DEC is about to start shipping a little-noticed product that makes a first step toward a VAX distributed data base system. Called VAX Data Distributor, it automates the distribution of relational data among multiple VAX processors. Data Distributor works with DEC's RDB relational data base management system and VIDA, the DEC VAX-to-IBM mainframe link. So far, it operates only one way, distributing data from a host data base but providing no provision for updating.

You thought presidential politics were bad . . . One of the most announced unannounced products in the history of computing is finally set to make its official debut late next month when ETA Systems introduces its ETA-10 supercomputer. The first ETA-10 shipped to a field-test customer has been running at Florida State University in Tallahassee for two months. ETA Systems has announced several other sales and has kept the world posted for several years as to developments of their first major product since they were spun off from Control Data.

Salt Lake beats Seattle. Novell will be busy between March and year's end. At Novell's developers' conference last week, company Vice-President Craig Burton said users can expect Advanced Netware/386 network software in either the third or fourth quarter, while a 386 file server could make an appearance as early as March.

No tubes in this set. A Zenith sales representative hinted to attendees at a recent users group meeting that the firm later this year may upgrade its Z-181 portable with greater speed — it currently runs at 4.77 MHz — and a hard disk drive. The company may also incorporate the Flat Tension Mask monitor it showed at Comdex/Fall '86, which offers flat screens with higher resolution.

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